

Company: CAERUS OPERATING LLC

Well: Puckett 13C-23 697

Field: Grand Valley

County: Garfield State: Colorado

Cement Quality Log

CBL / VDL

Gamma Ray/CCL

Location:

Lat 39.3007.76" N Long. 108.1118.38" W

Elev.: K.B. 8462.00 ft
G.L. 8432.00 ft
D.F. 8462.00 ft

Permanent Datum:

Log Measured From:

Drilling Measured From:

Ground Level

Kelly Bushing

Kelly Bushing

Elev.: 30.00 ft

8432.00 f

above Perm.Datum

API Serial No.

Section:

Township:

Range:

5045233750000

23

S6

97W

County:

Field:

Location:

Well:

Company:

Garfield

Grand Valley

Lat 39.3007.76" N Long. 108.1118.38" W

Puckett 13C-23 697

CAERUS OPERATING LLC

Logging Date	16-Dec-2017
Run Number	SCMT
Depth Driller	9504.00 ft
Schlumberger Depth	8890.00 ft
Bottom Log Interval	8890.00 ft
Top Log Interval	2500.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.6 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	2525.00 ft
To	9504.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	P110
From	0.00 ft
To	9504.00 ft
Max Recorded Temperatures	218 degF
Logger on Bottom	16-Dec-2017
Unit Number	3046
Recorded By	Justin Ray
Witnessed By	Ryan Tompkins

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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9.1 Integration Summary

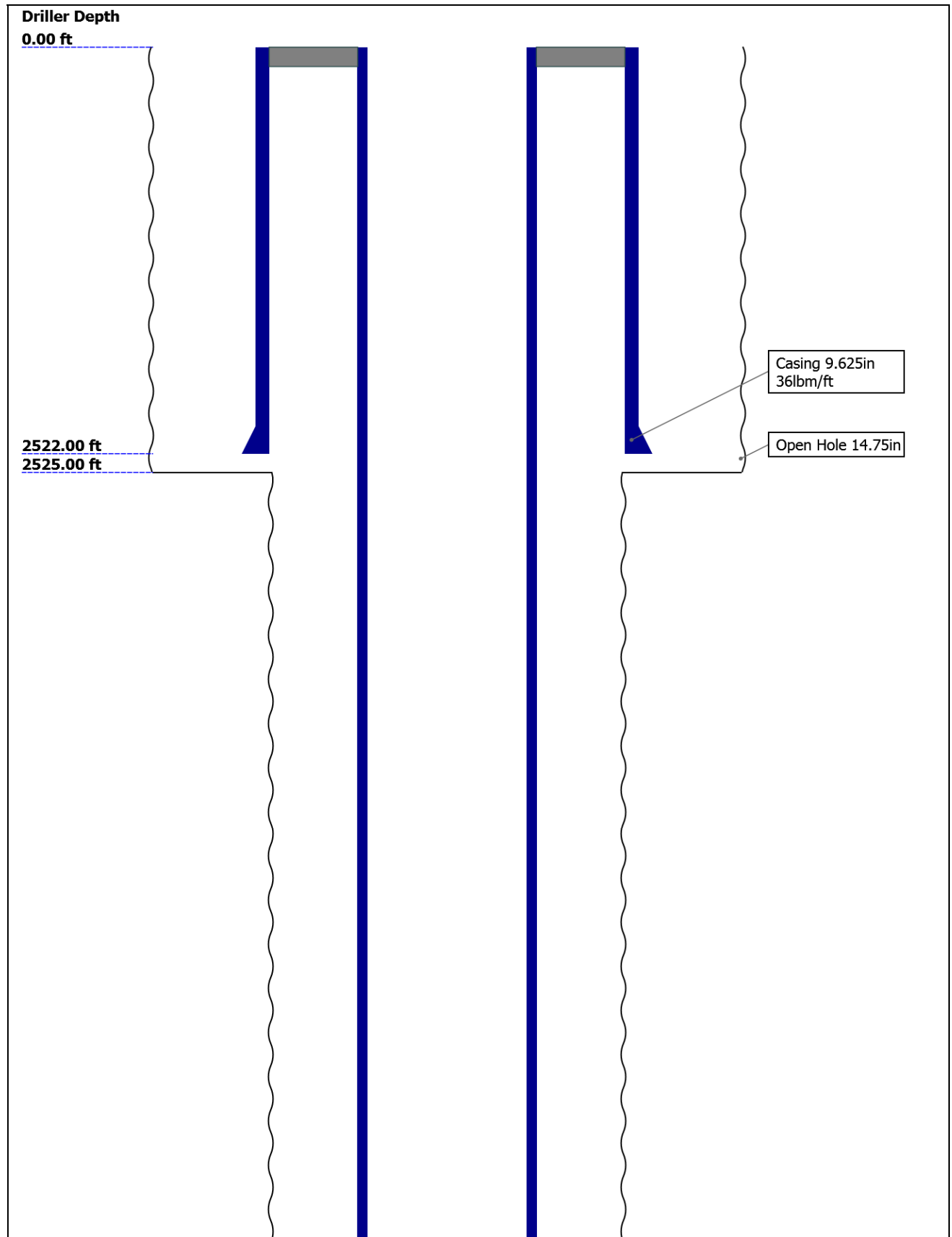
9.2 Software Version

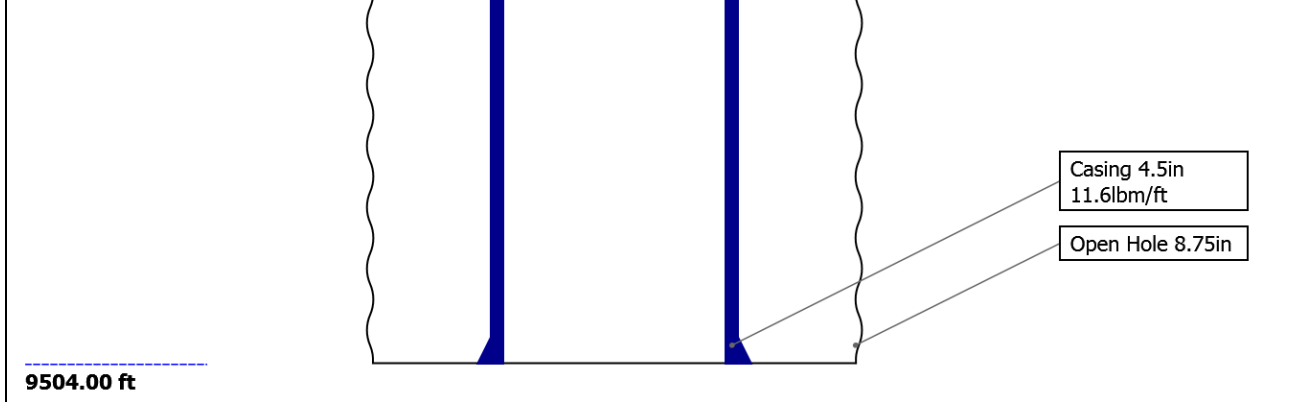
9.3 Composite Summary

9.4 Log (Sonic CBL with VDL)

9.5 Parameter Listing

Well Sketch



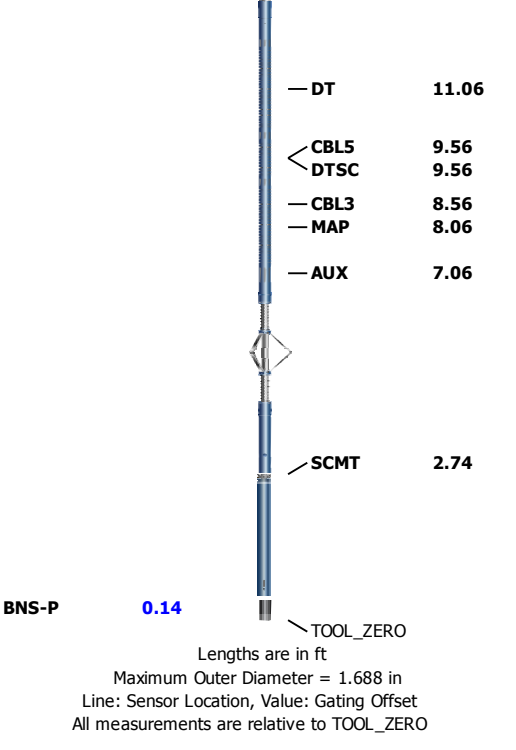


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2525				
Top Logger (ft)	0	2525				
Bottom Driller (ft)	2525	9504				
Bottom Logger (ft)	2525	9504				
Casing						
Size (in)	9.625	4.5				
Weight (lbm/ft)	36	11.6				
Inner Diameter (in)	8.921	4				
Grade	J55	P110				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2522	9504				
Bottom Logger (ft)	2522	9504				

Remarks and Equipment Summary

SCMT: Toolstring				SCMT: Remarks		
Equip name	Length	MP name	Offset	Tool ran as per tool sketch.		
PEH-EF	31.06			Main Pass from 8890' to 2500'		
AH-38	28.7			Maximum Bottom Hole Temperature: 217.94 Deg F		
PSTP-A:1876	28.42			Maximum Bottom Hole Pressure: 3633 psi		
6				Logger Tagged @ 8890'		
PSC-A				Thank you for choosing Schlumberger.		
PSTC-A:1826						
PBMS-A:1876						
Sapphire 10kP						
SI						
SCMT-CB:81	20.15					
62						
SECH-CA						
SCMC-CA:810						
4						
CMIR-AG						
SCMS-CB:816						
2						
SCMX-CA:811						
5						



SCMT

Main Pass

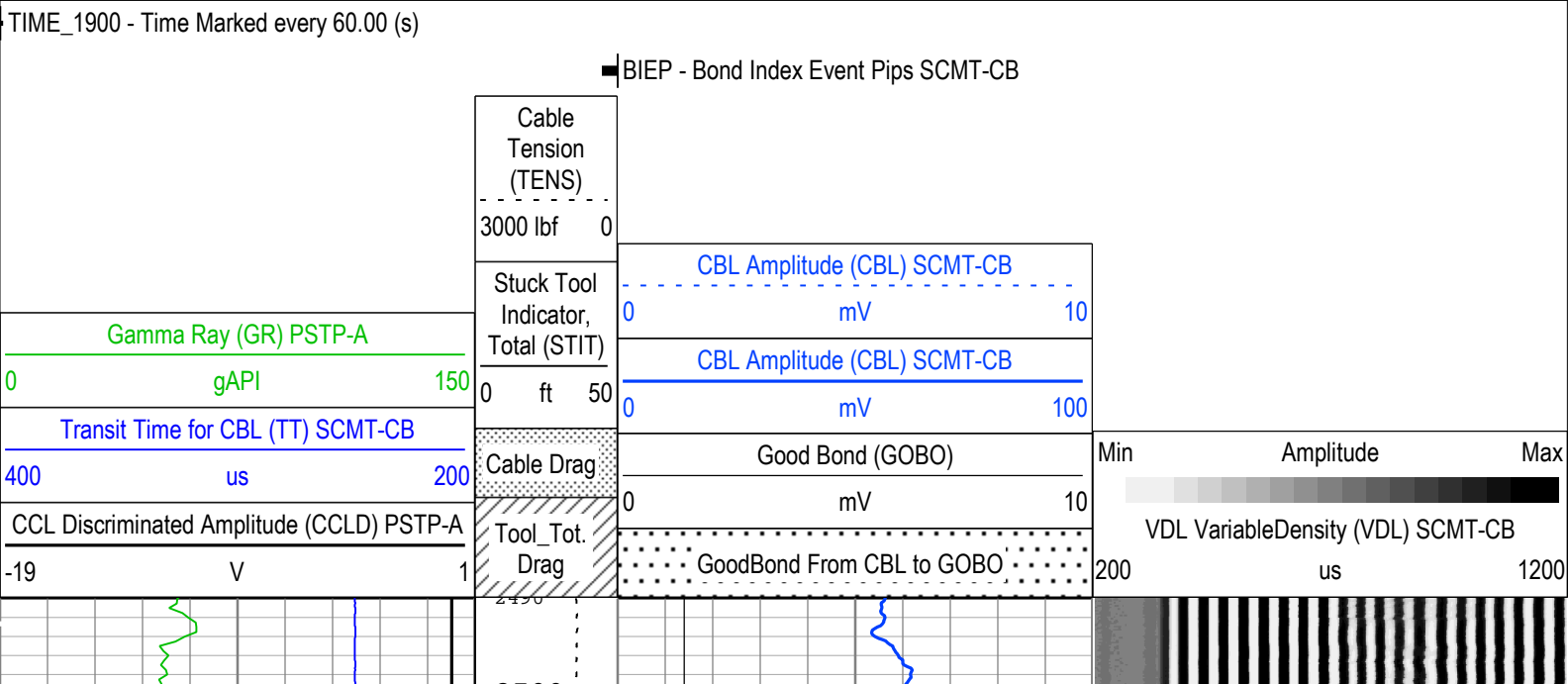
Software Version	
Acquisition System	Version
Maxwell 2017 SP3	7.3.90279.3100

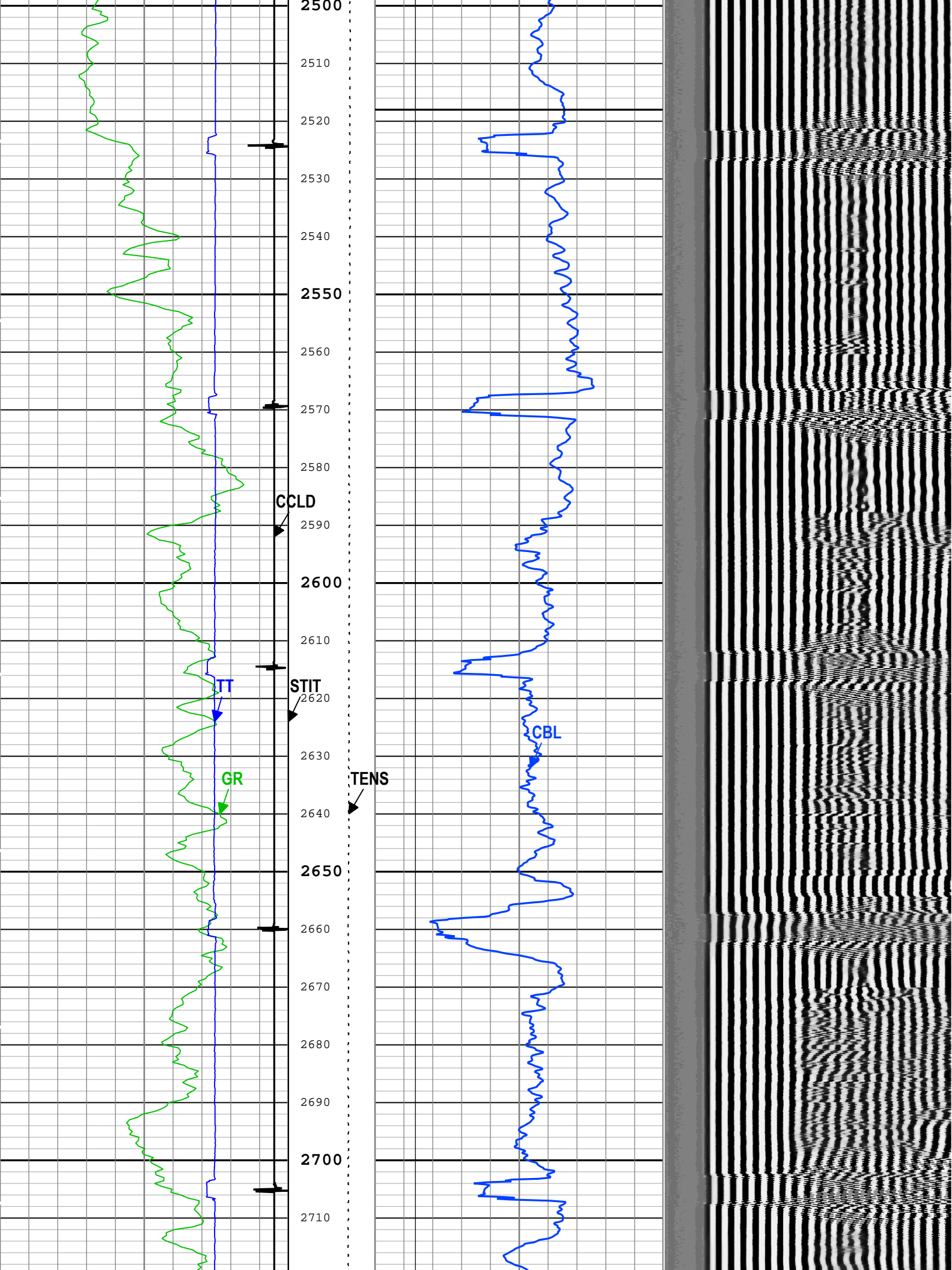
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
SCMT	Log[7]:Up	Up	2468.05 ft	8896.89 ft	16-Dec-2017 11:32:55	16-Dec-2017 15:08:24	ON	16.67 ft	Yes

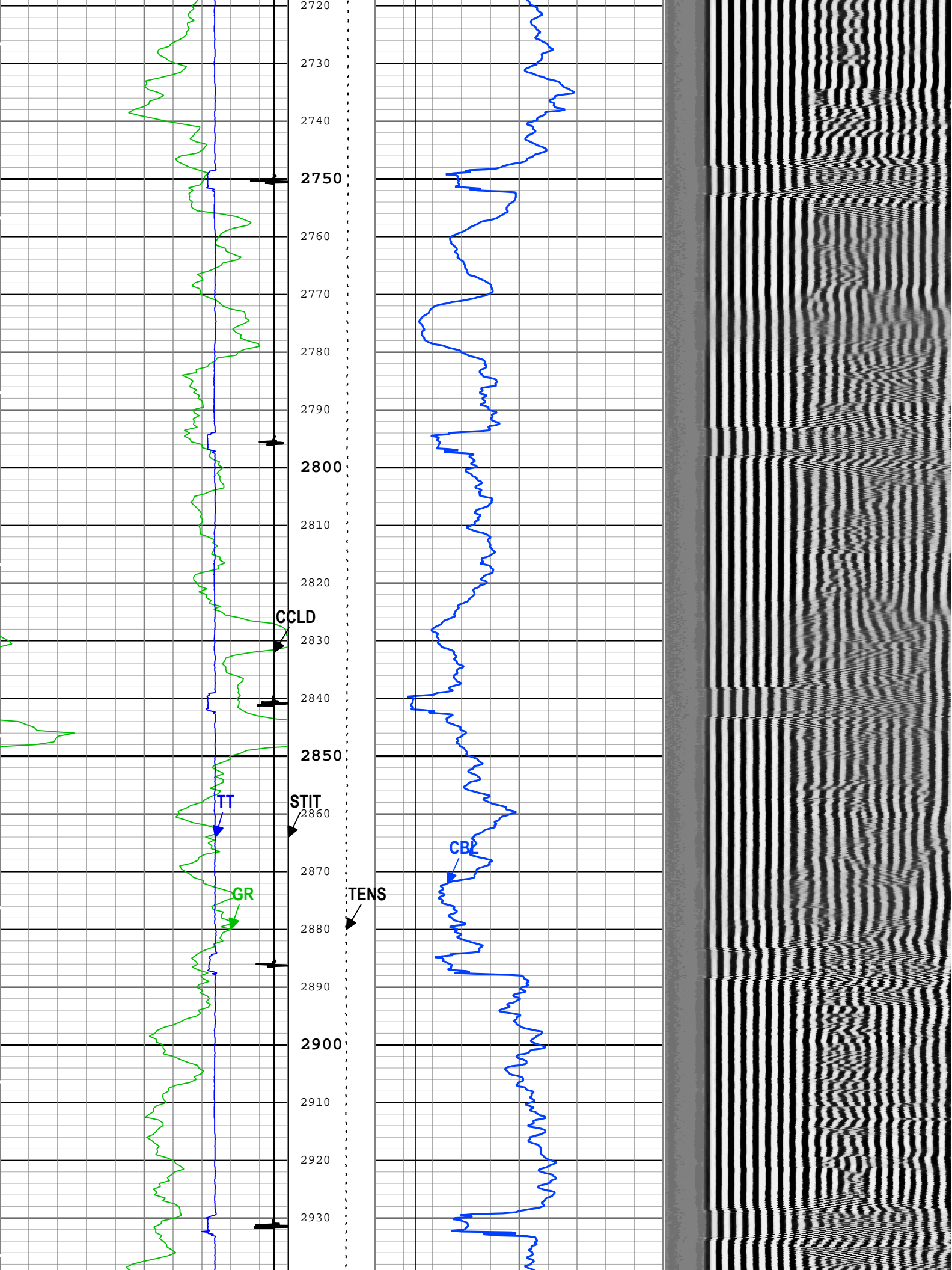
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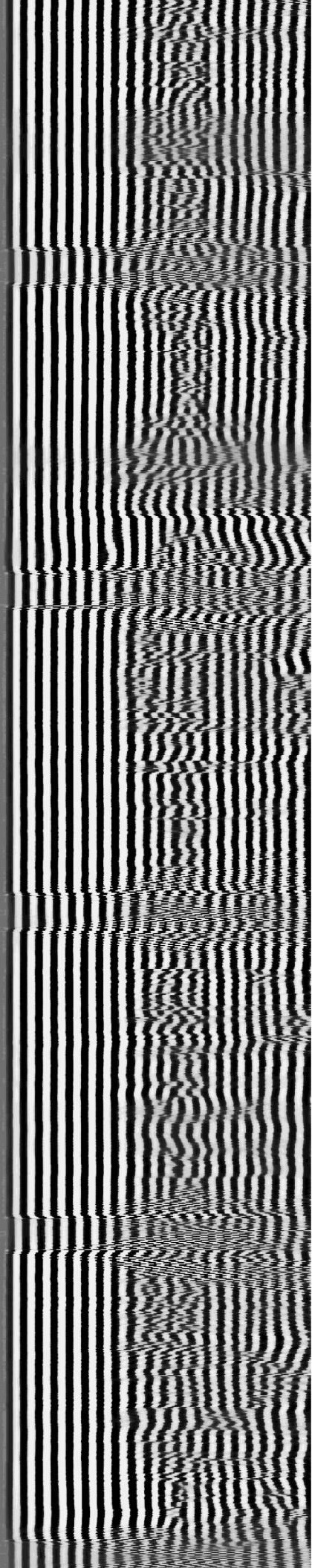
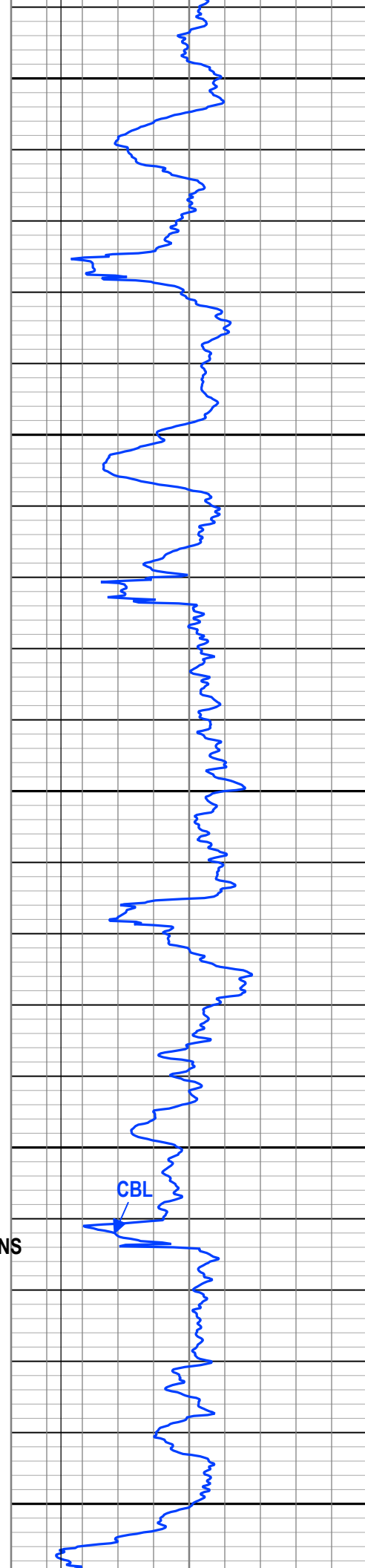
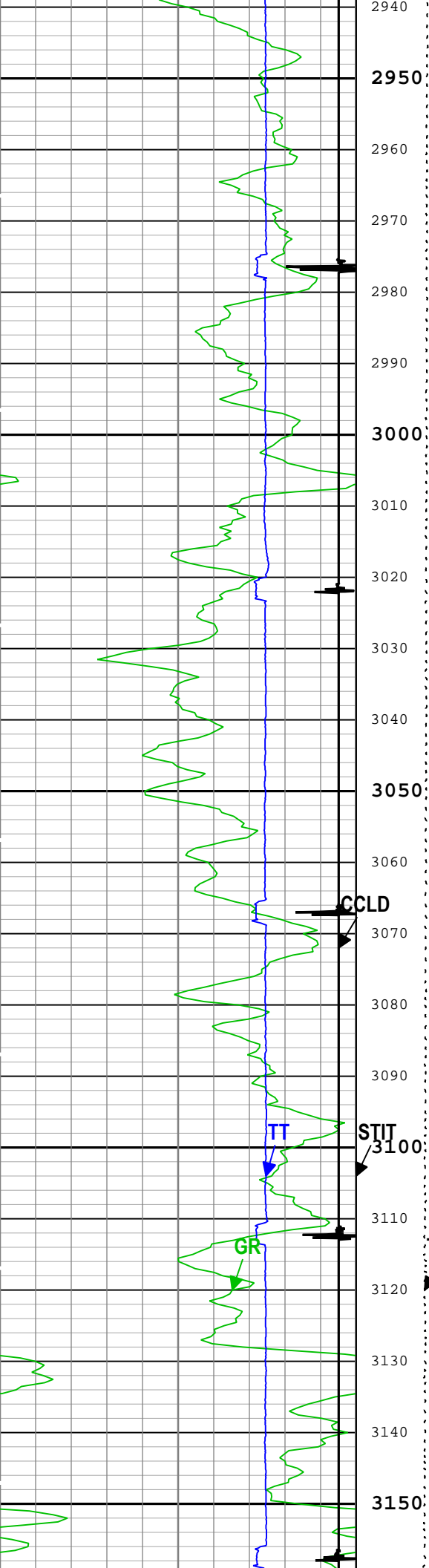
Log	Company:CAERUS OPERATING LLC Well:Puckett 13C-23 697 SCMT: Log[7]:Up:S015
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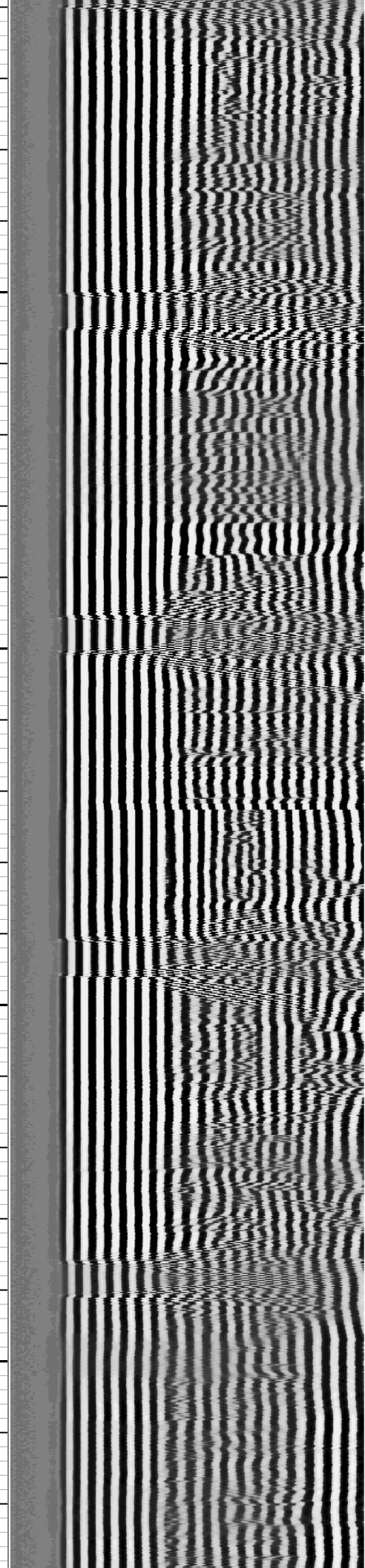
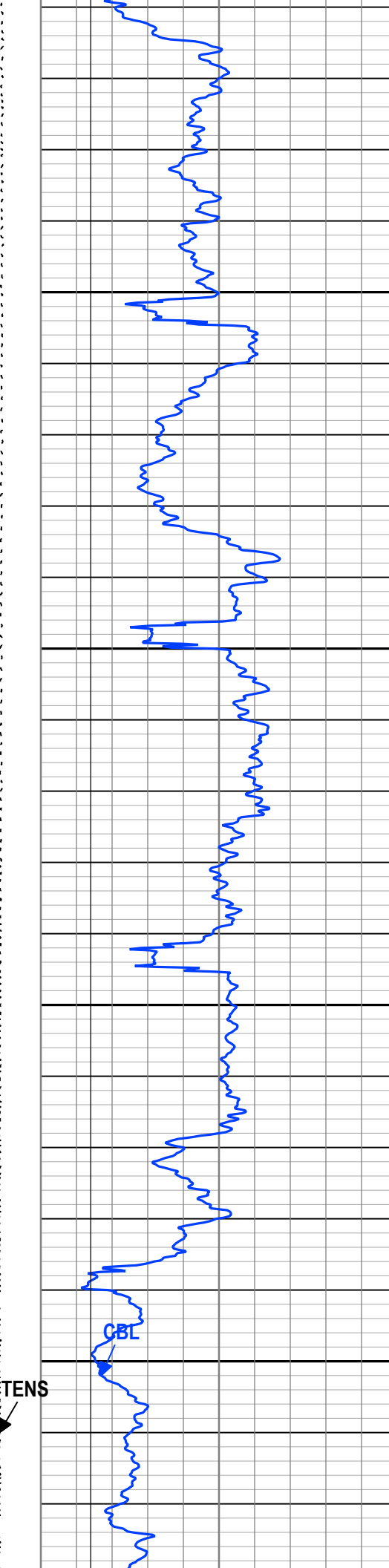
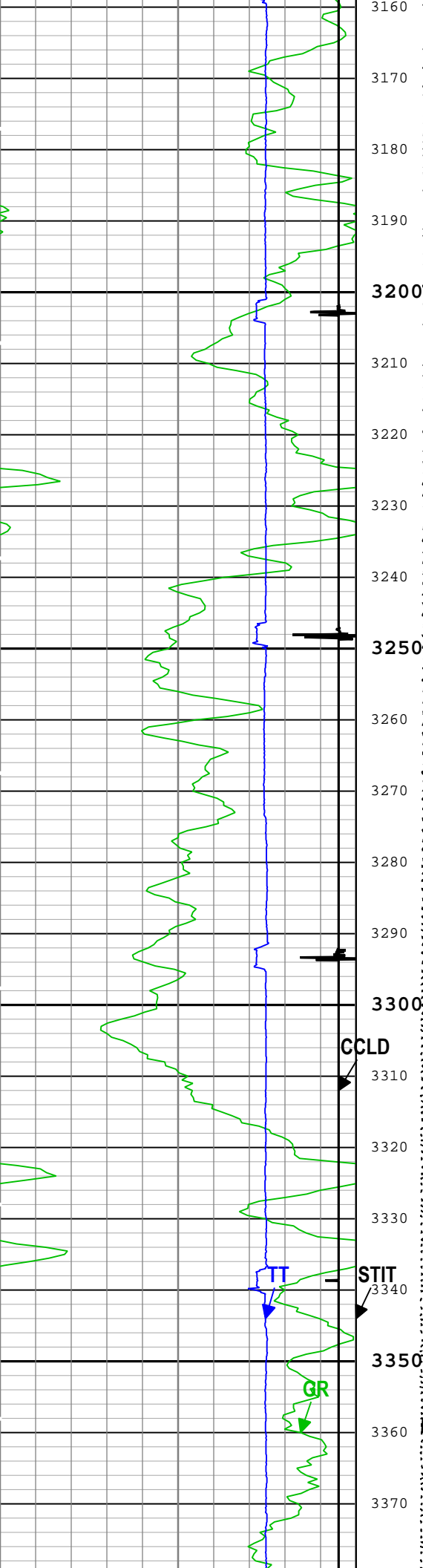
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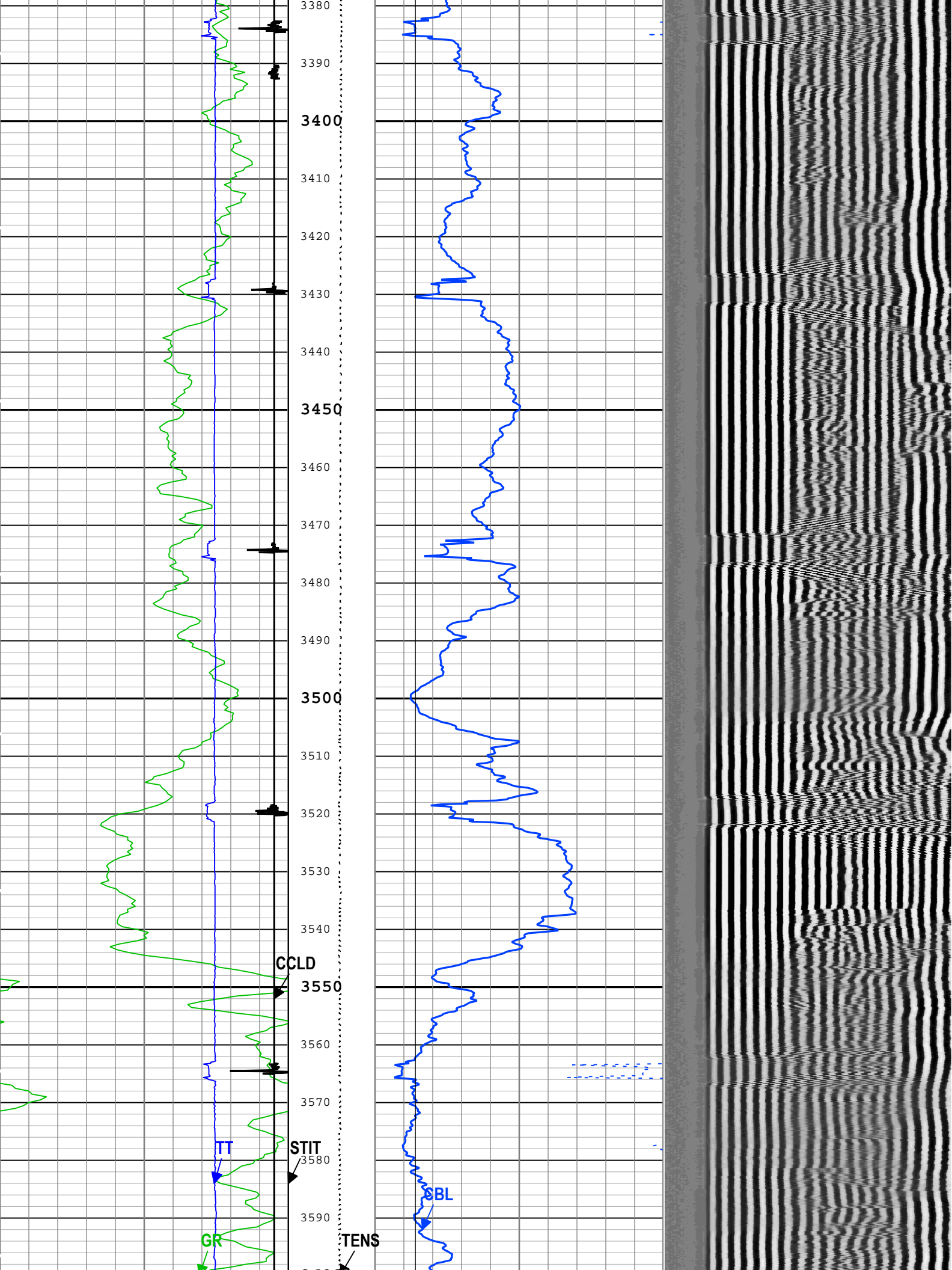


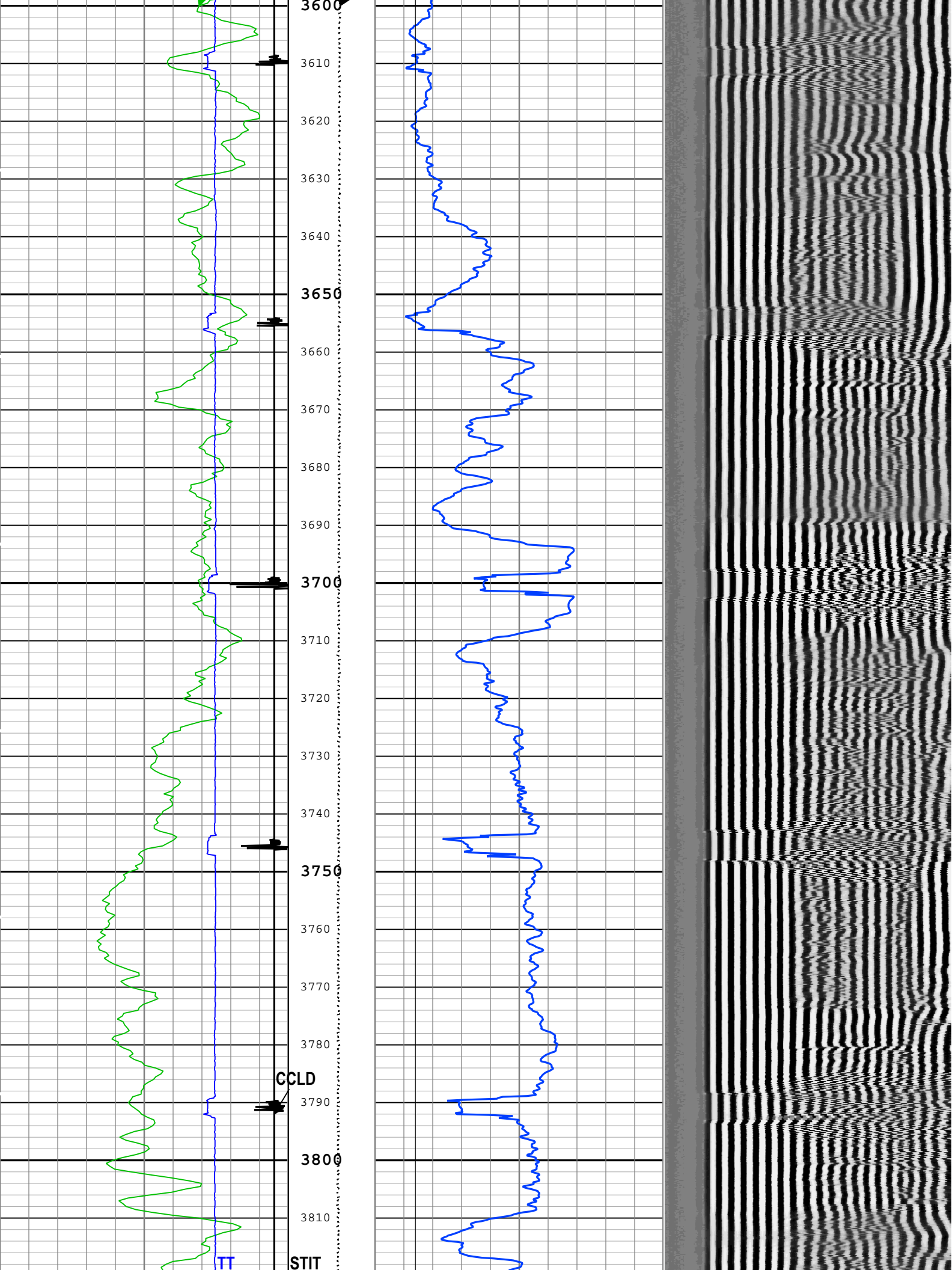


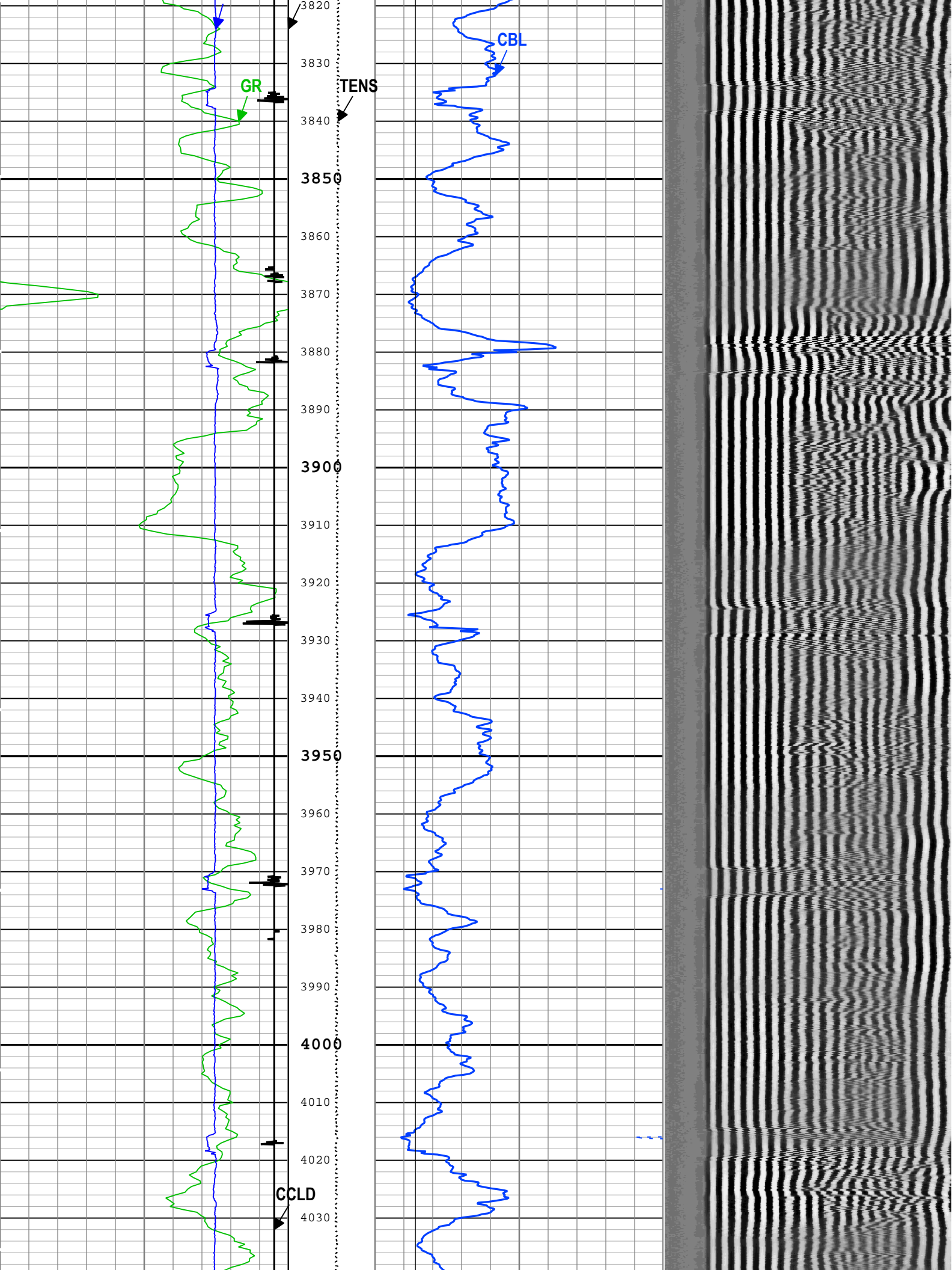


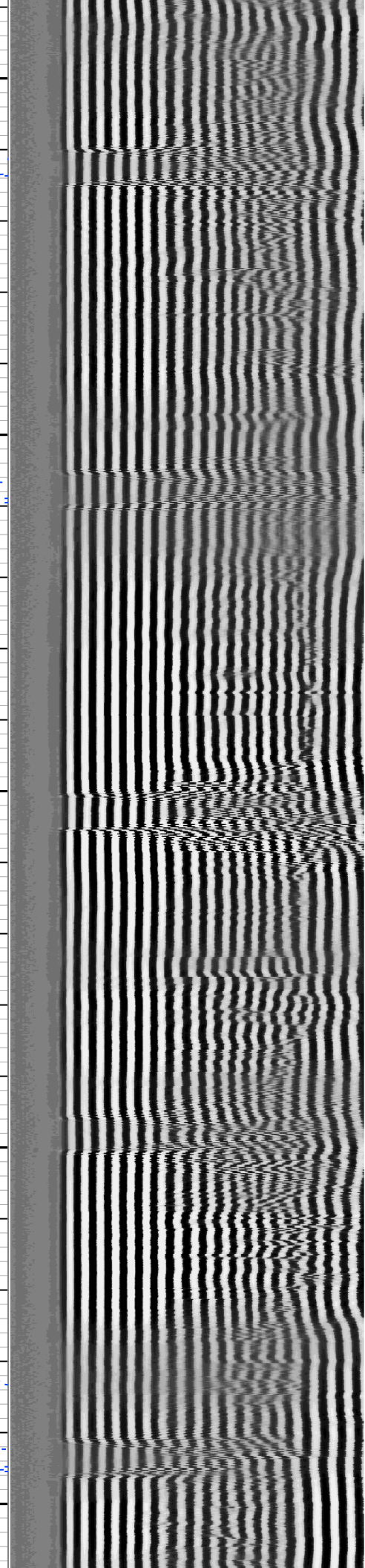
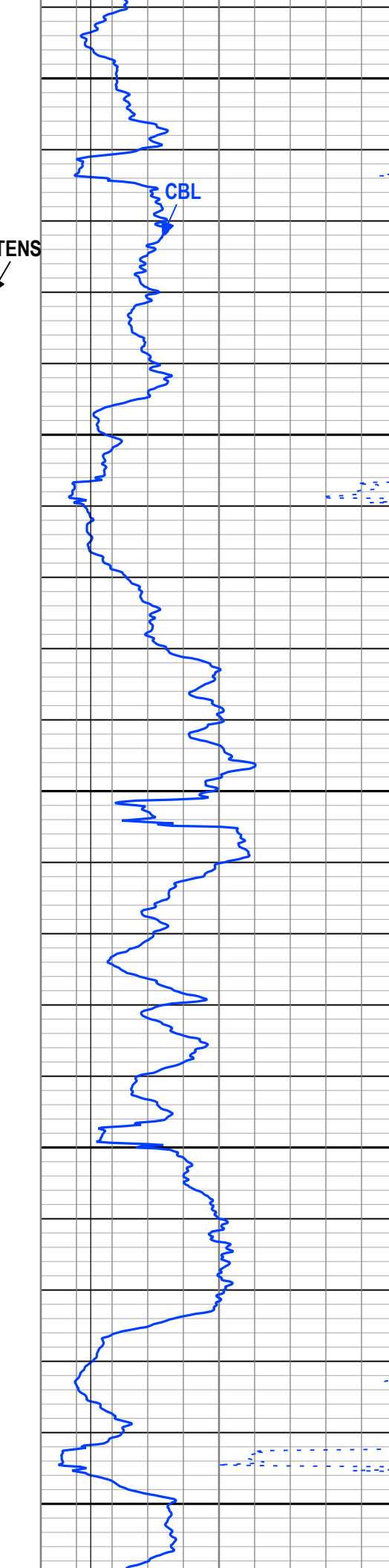
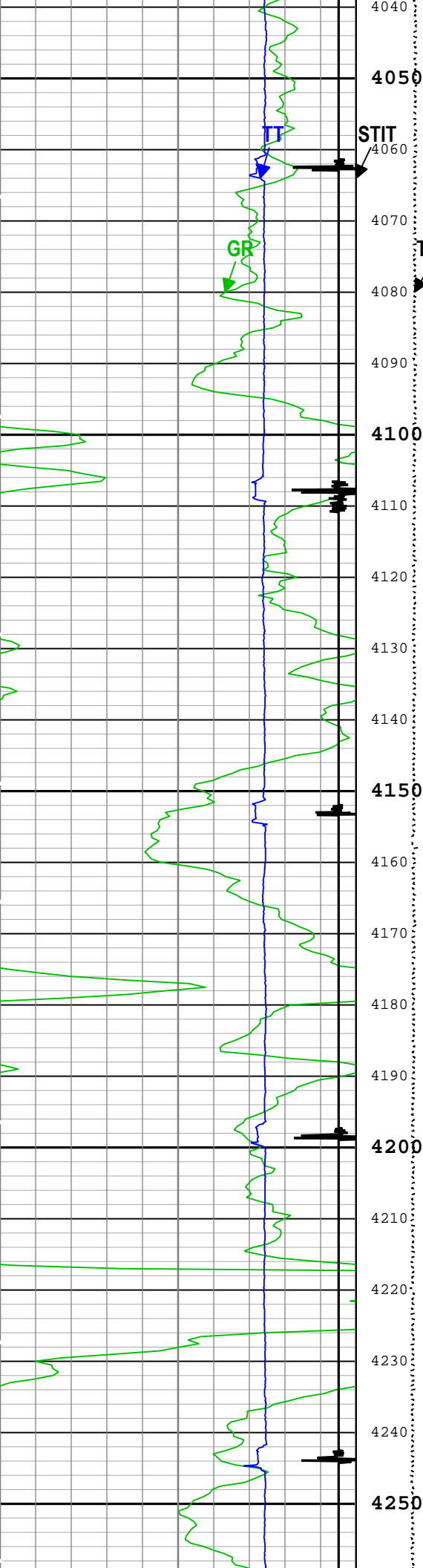


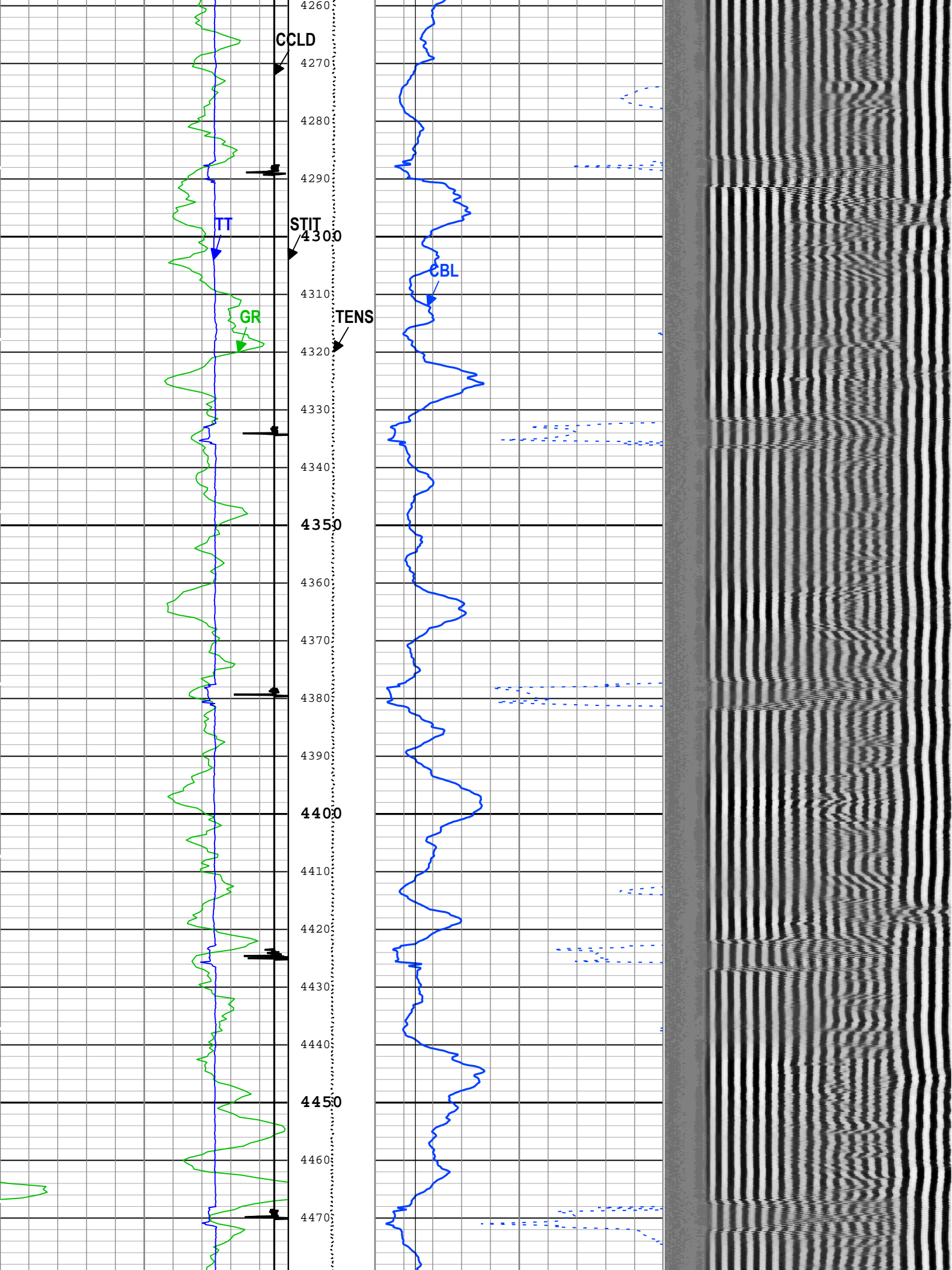


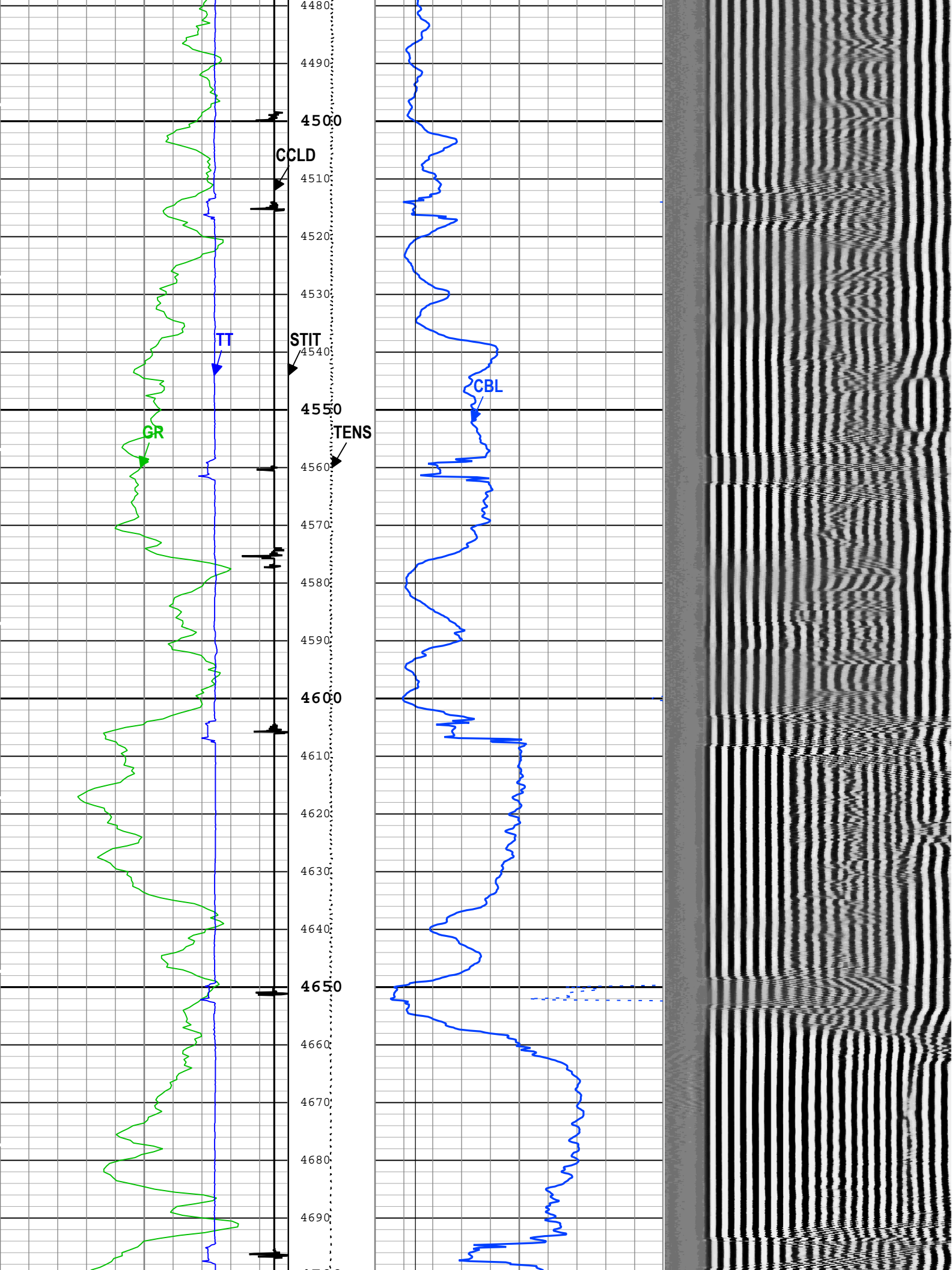


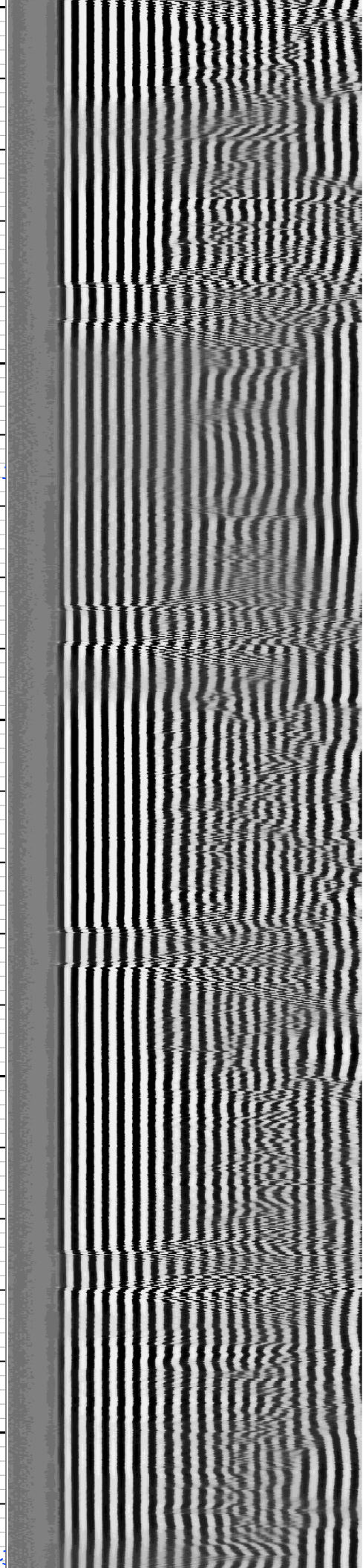
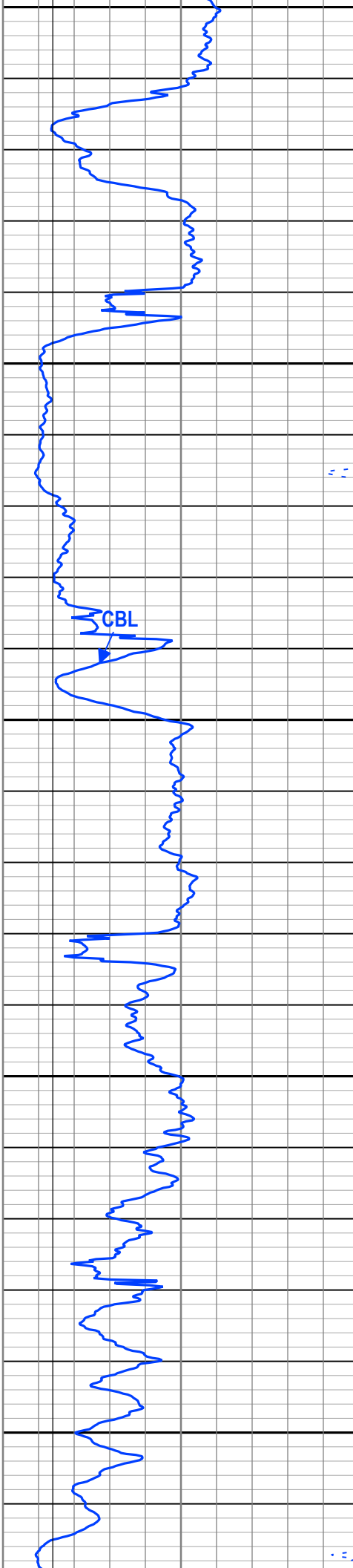
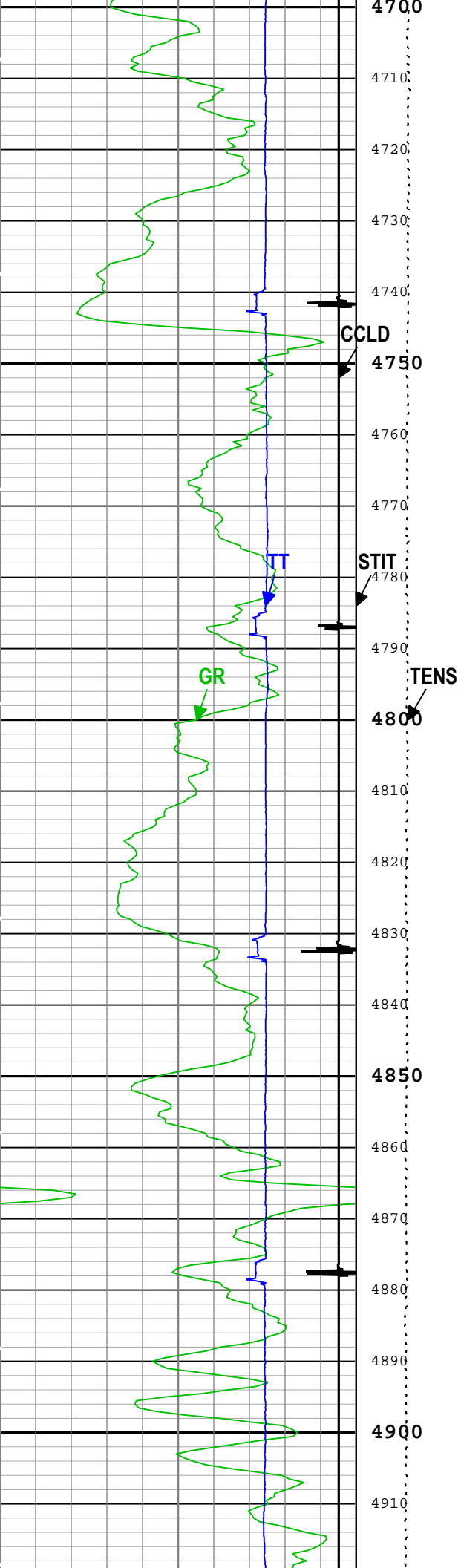


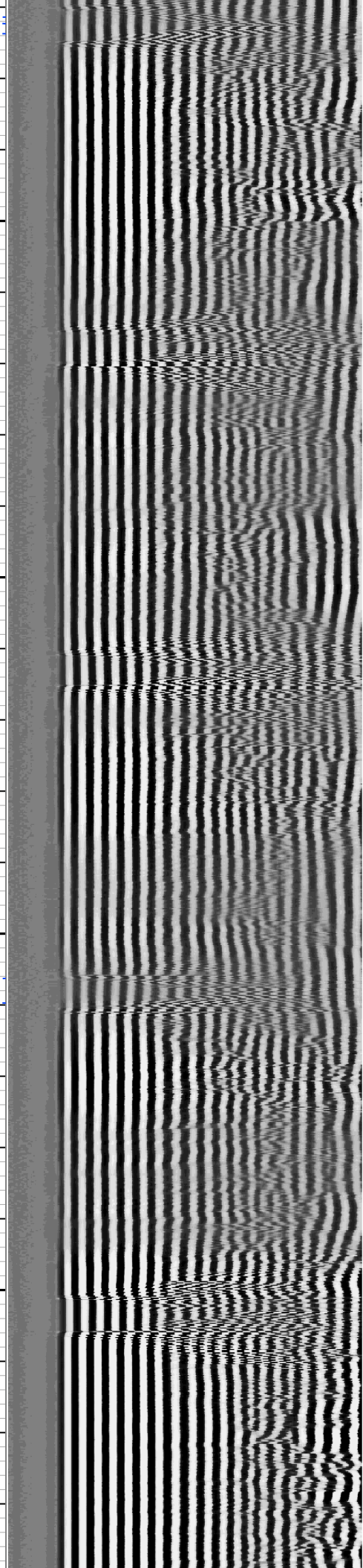
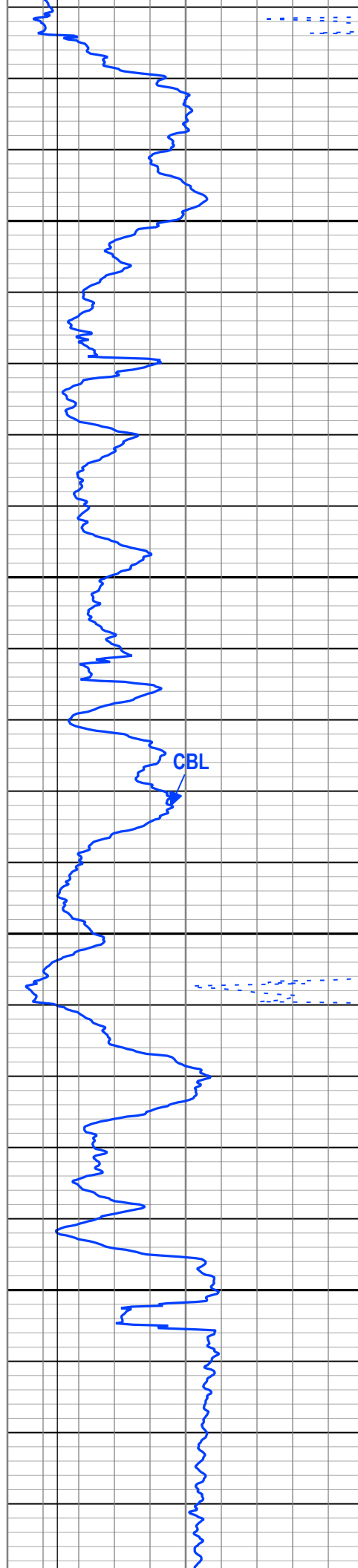
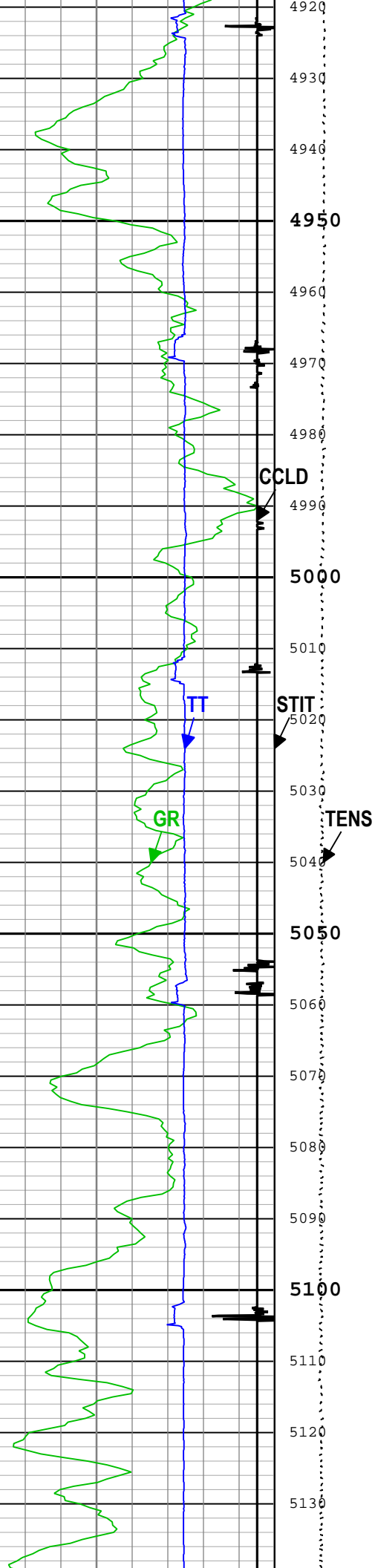


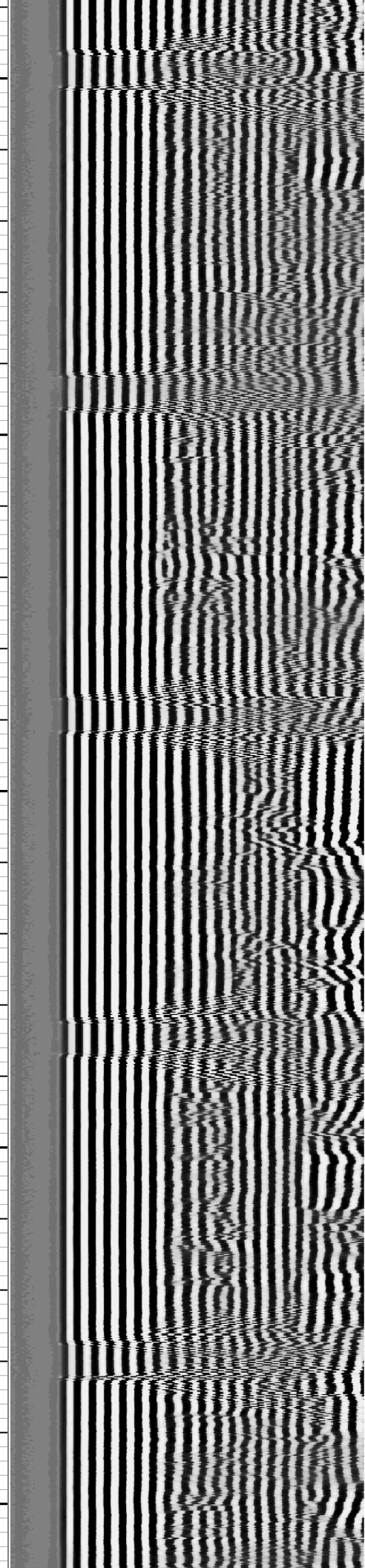
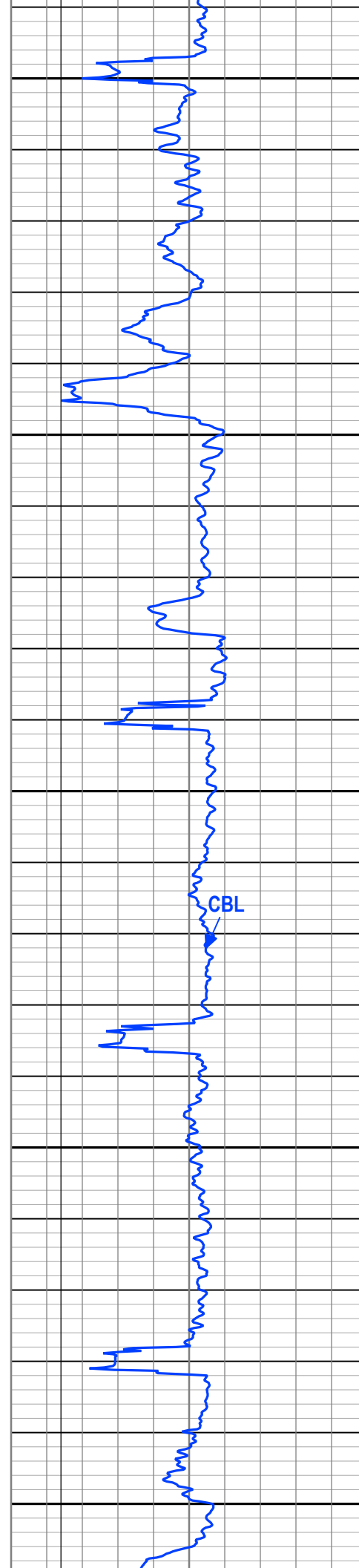
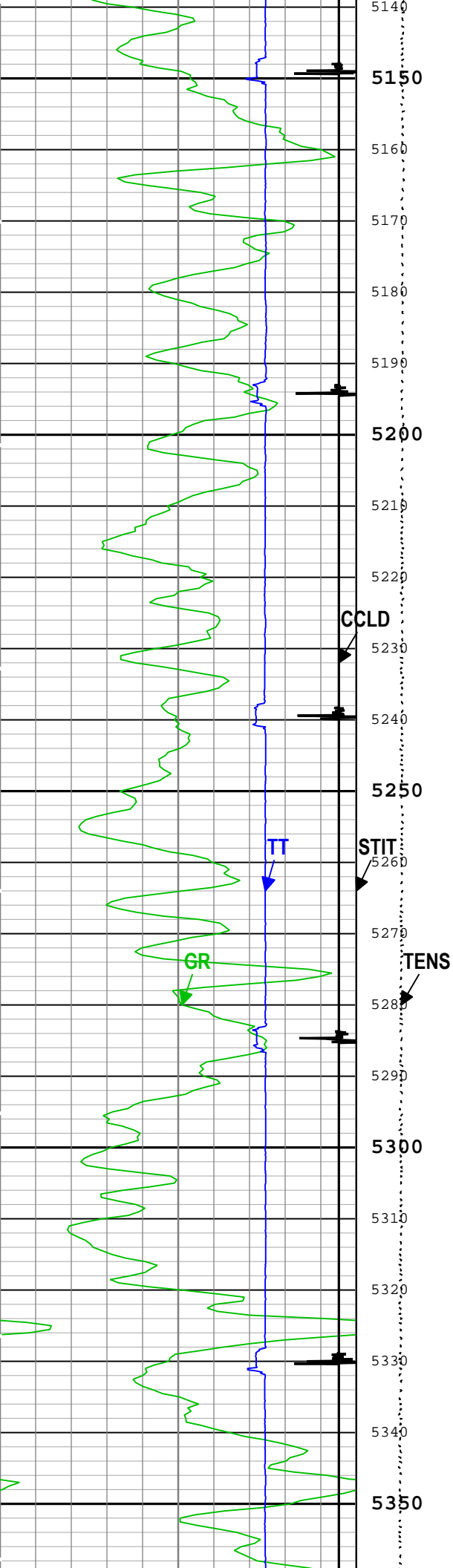


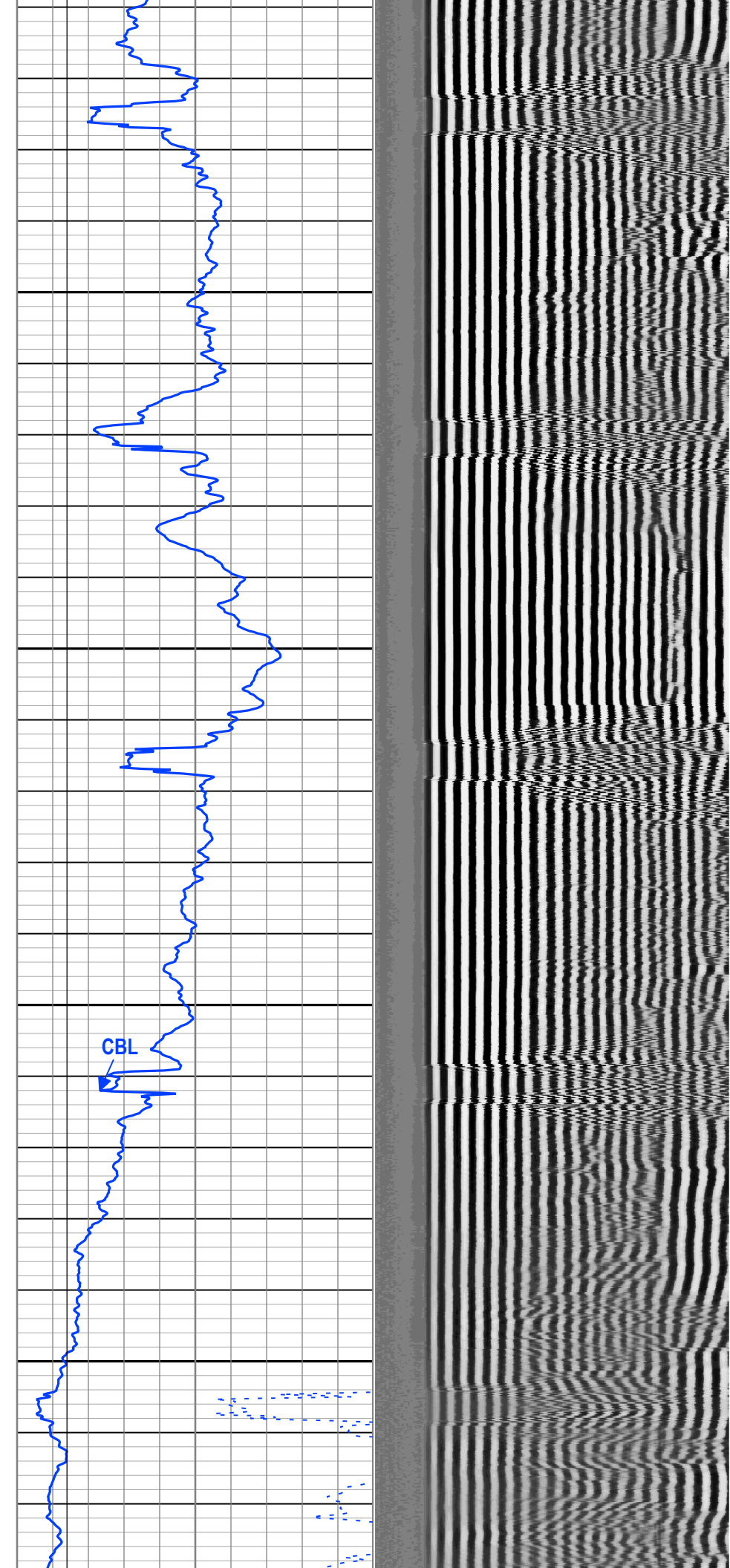
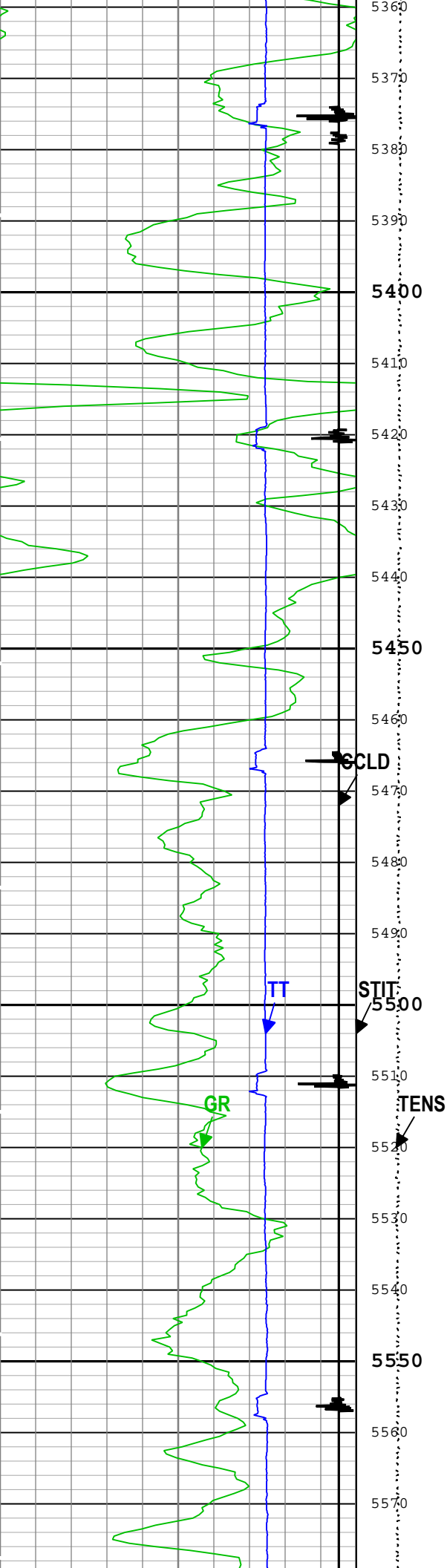


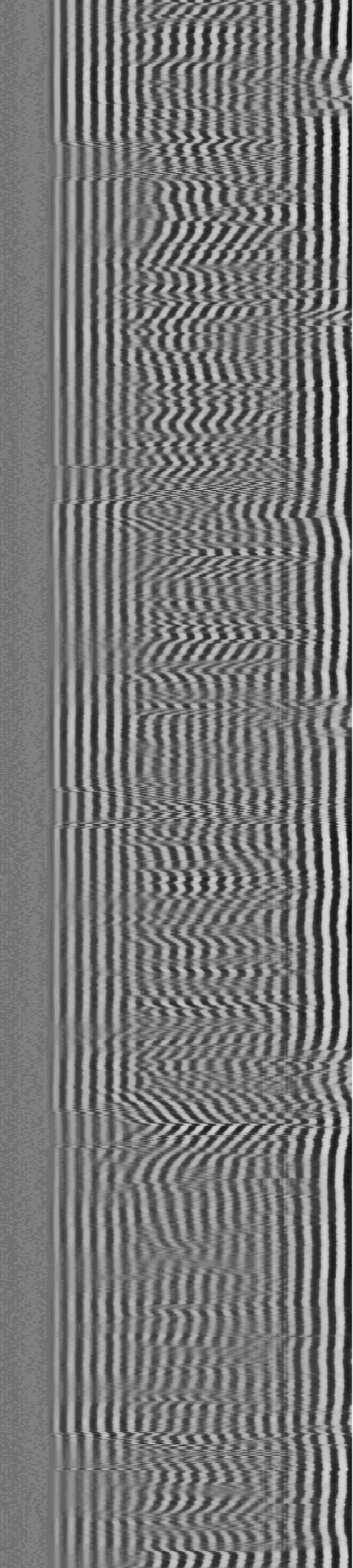
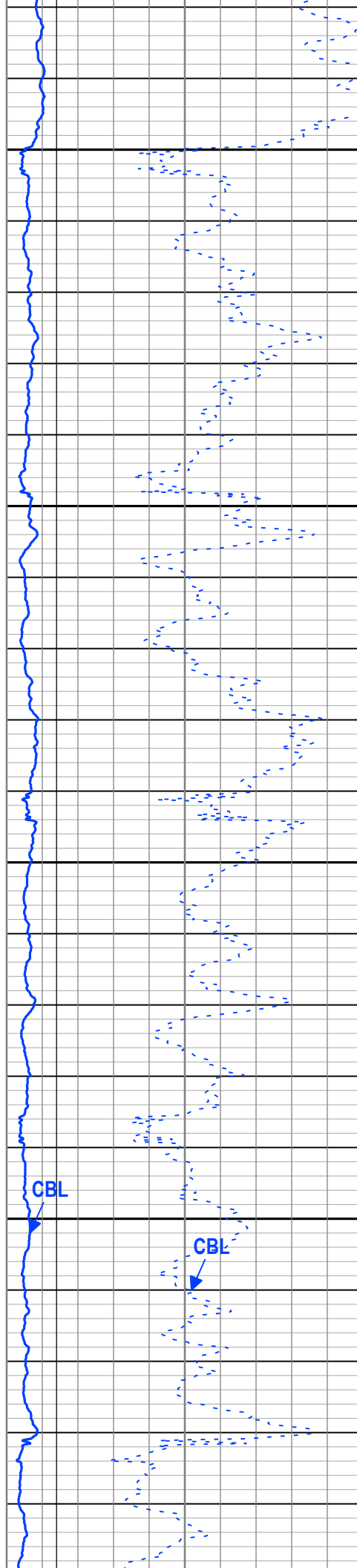
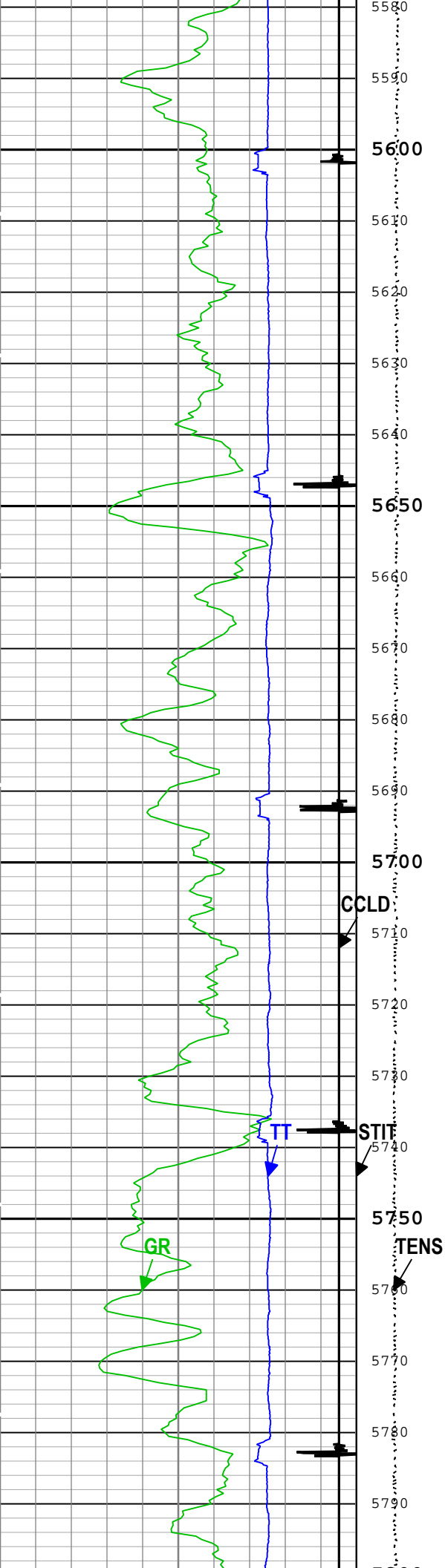


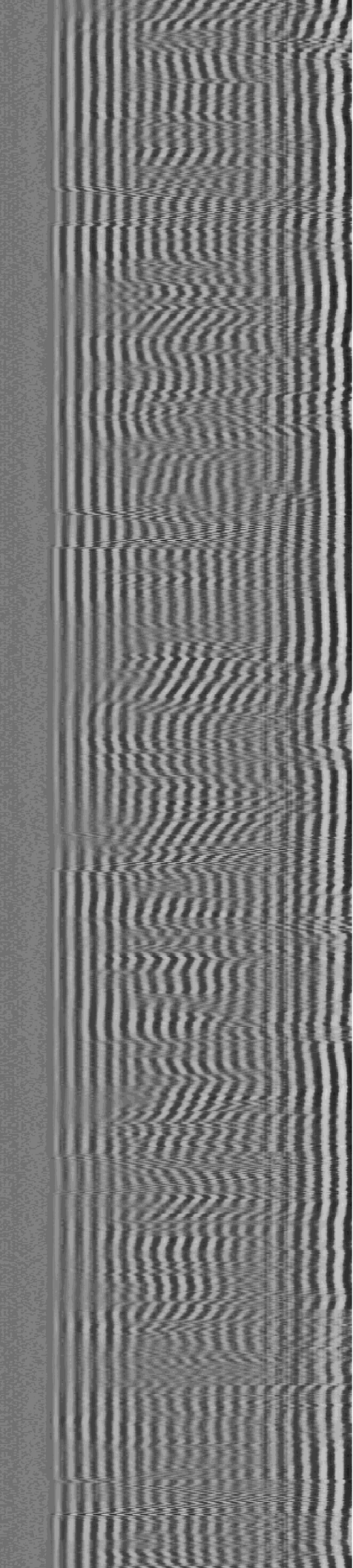
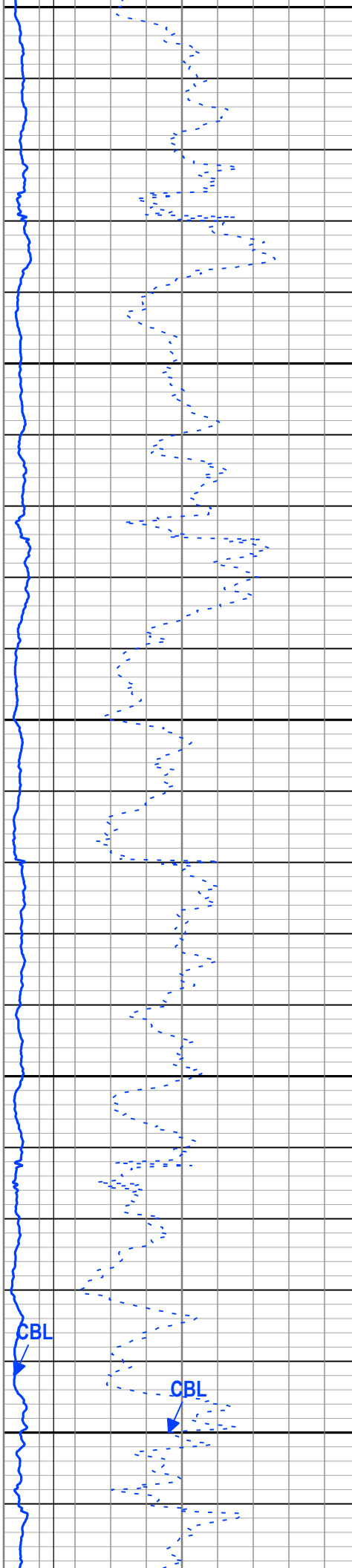
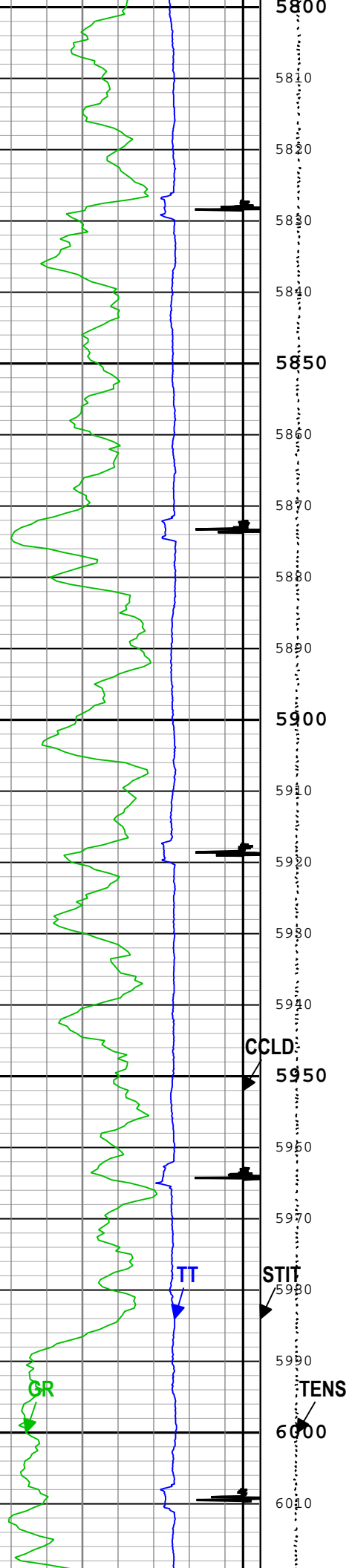


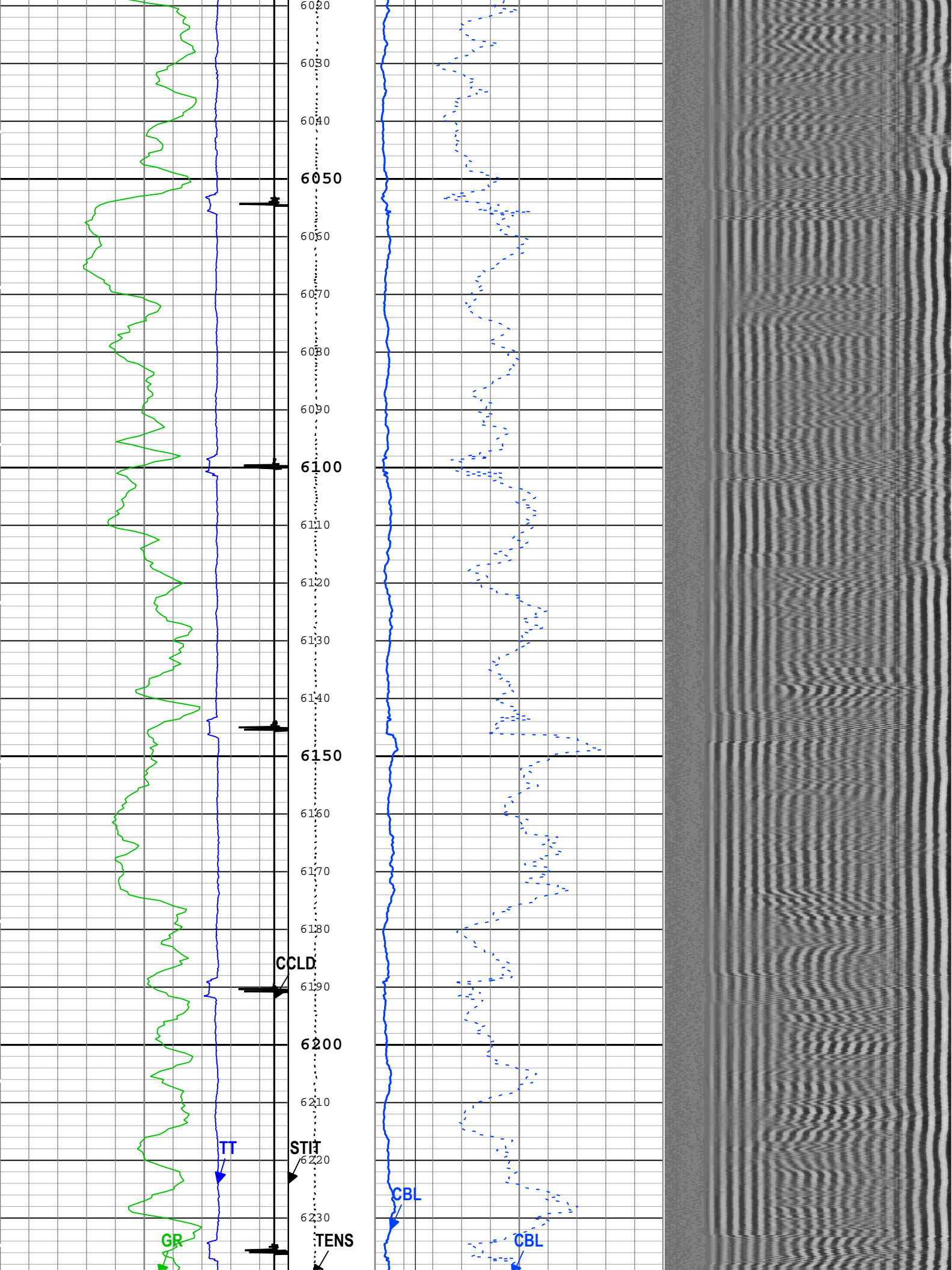


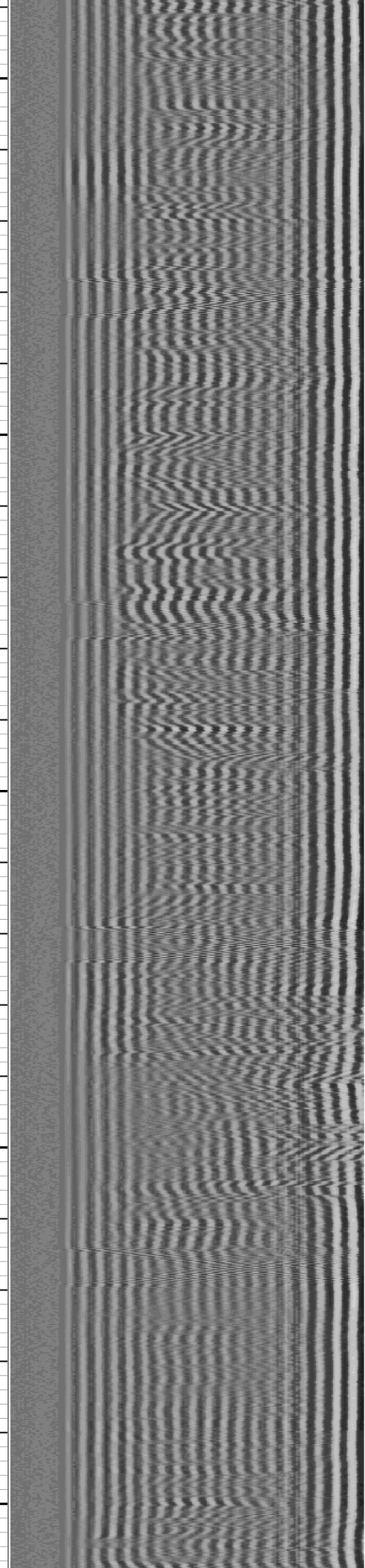
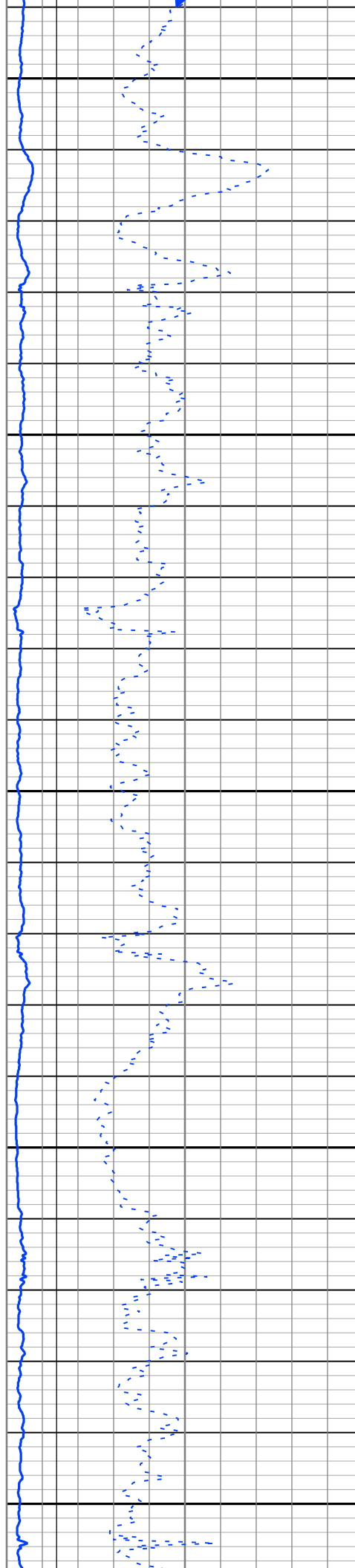
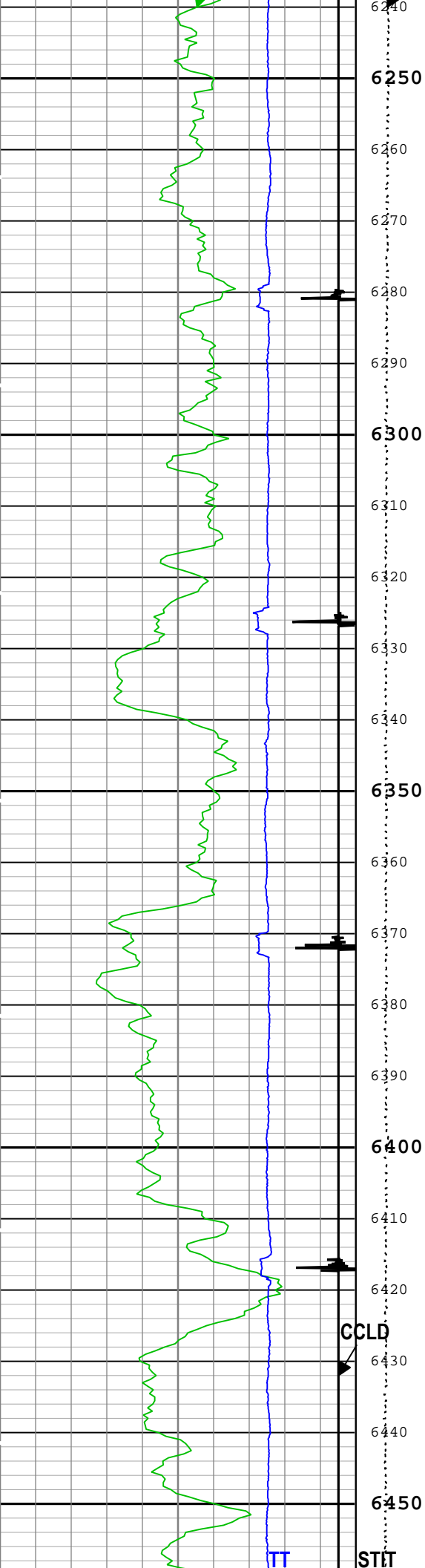


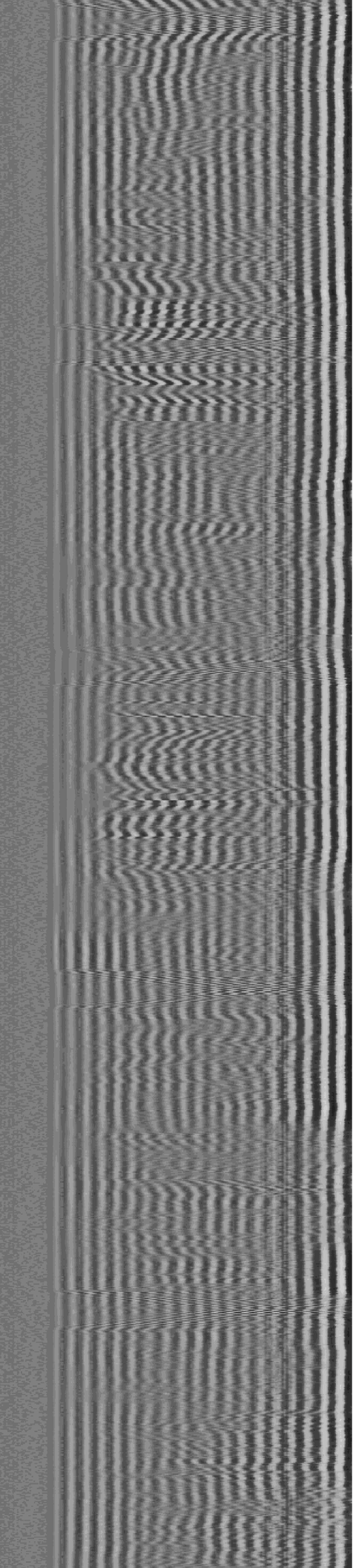
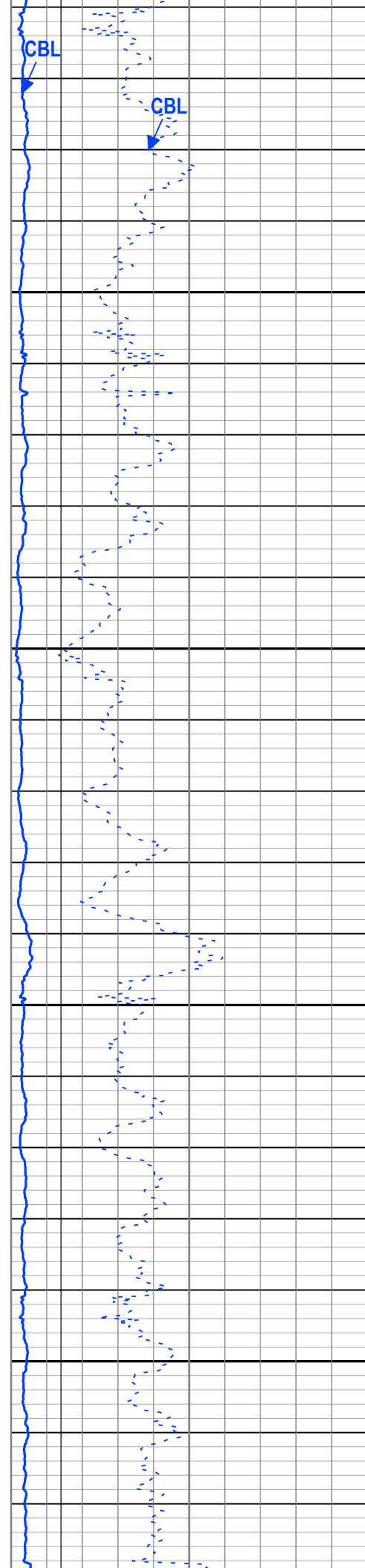
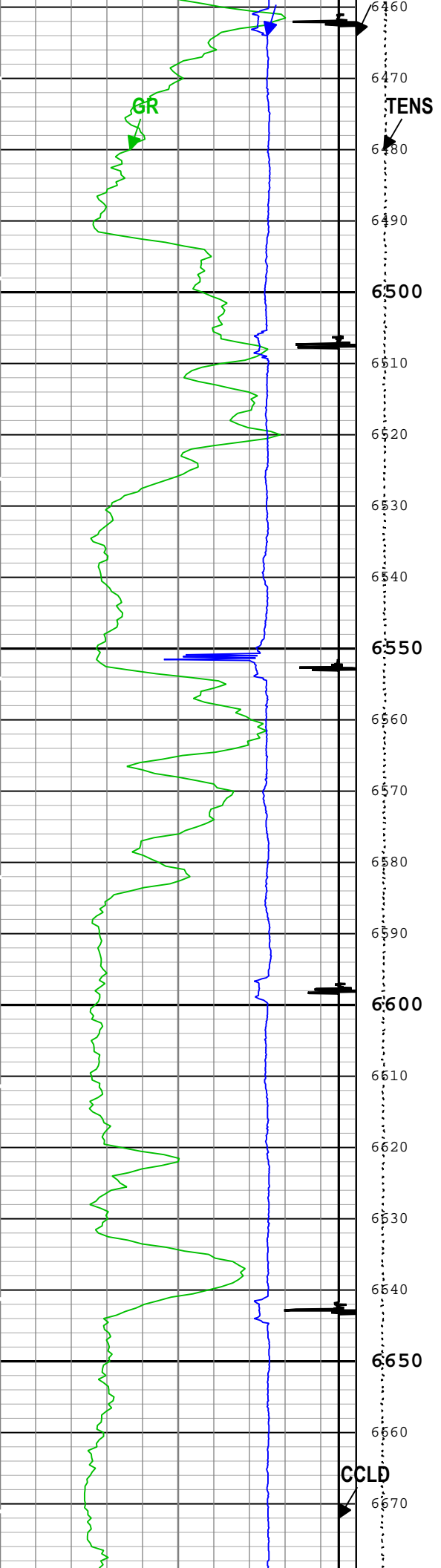


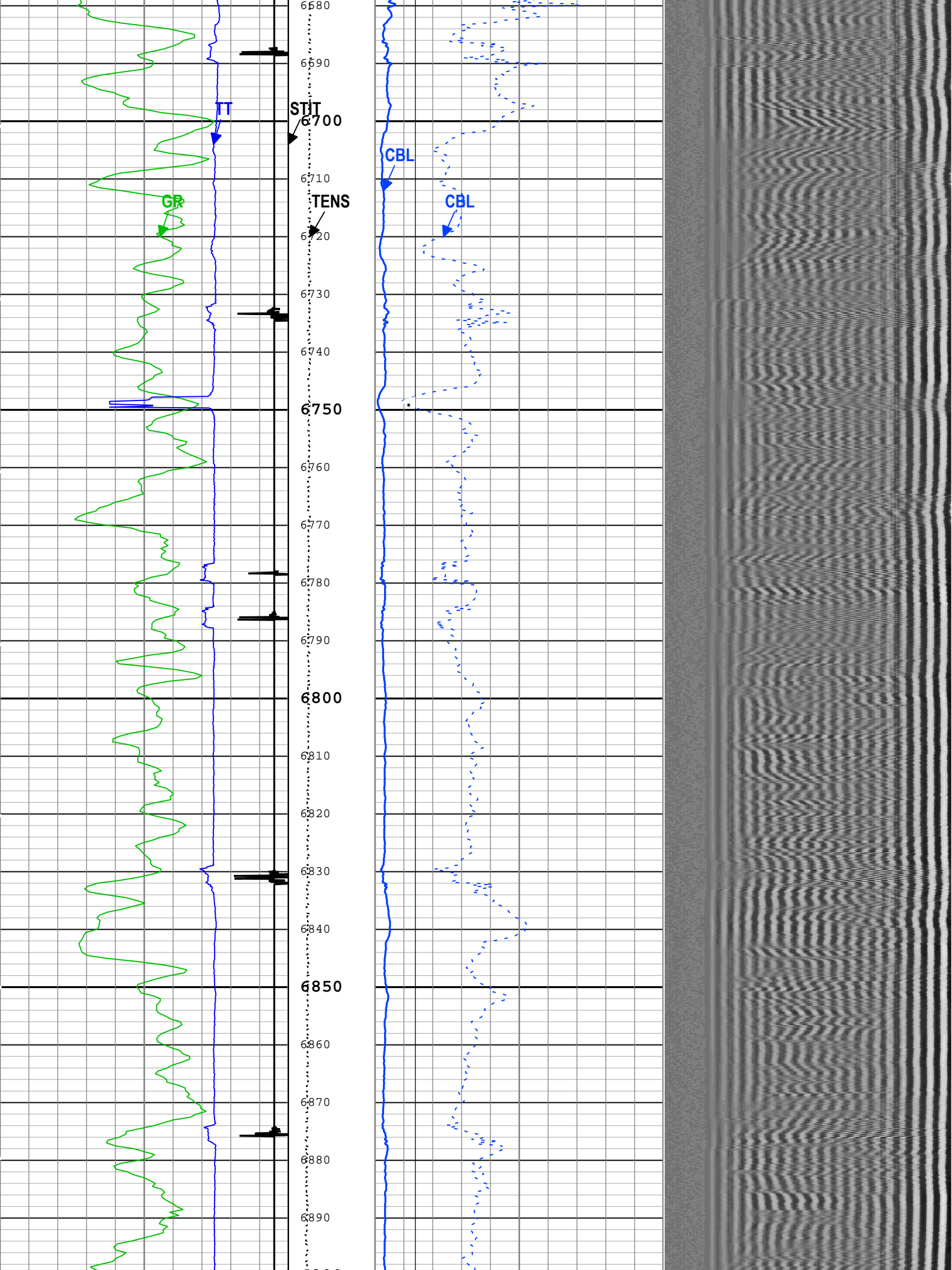


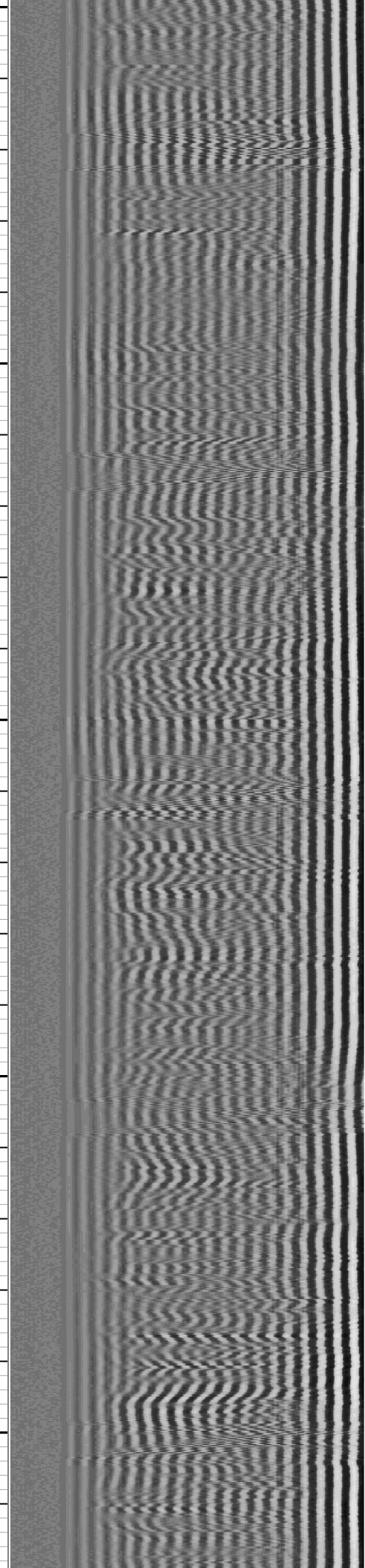
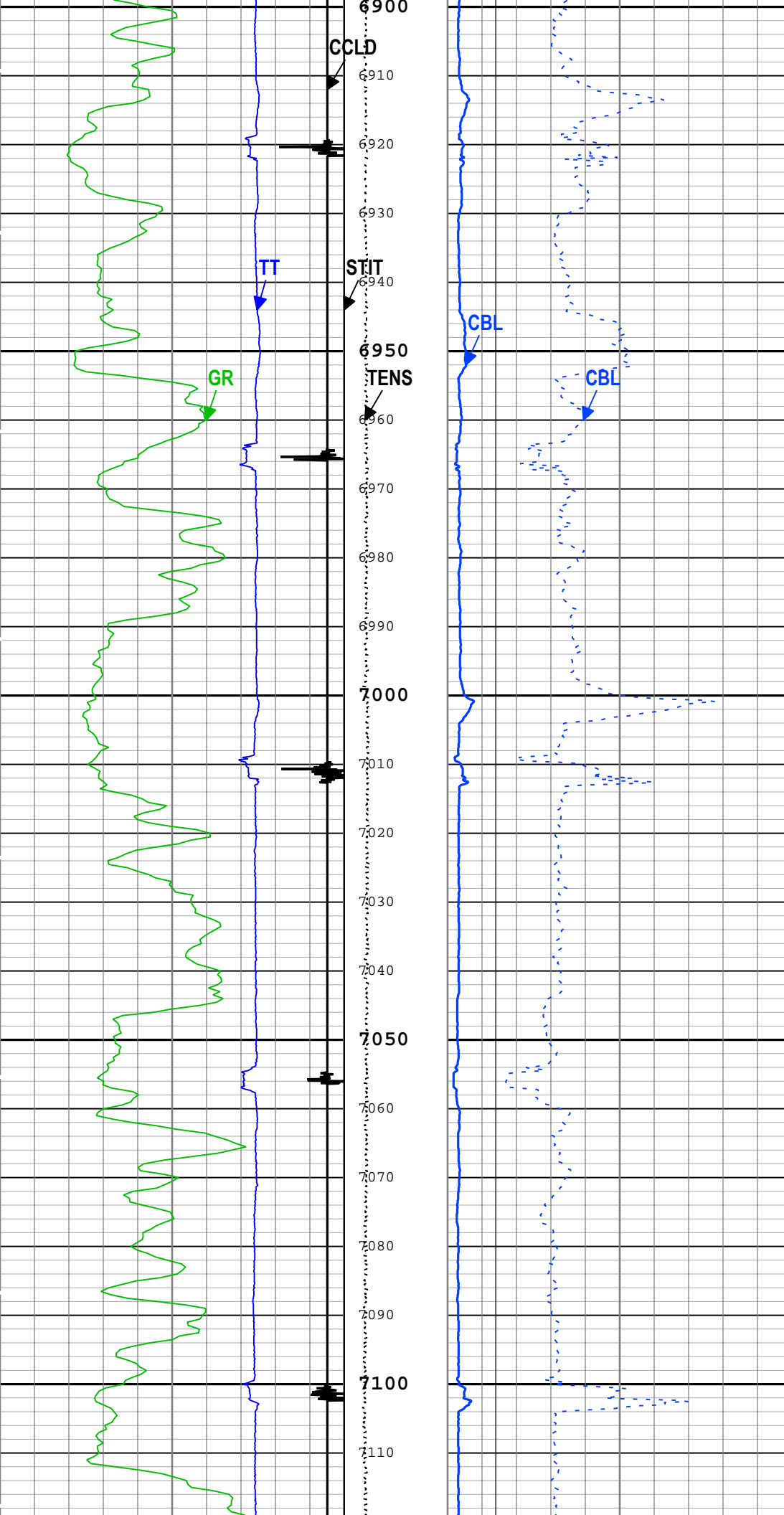


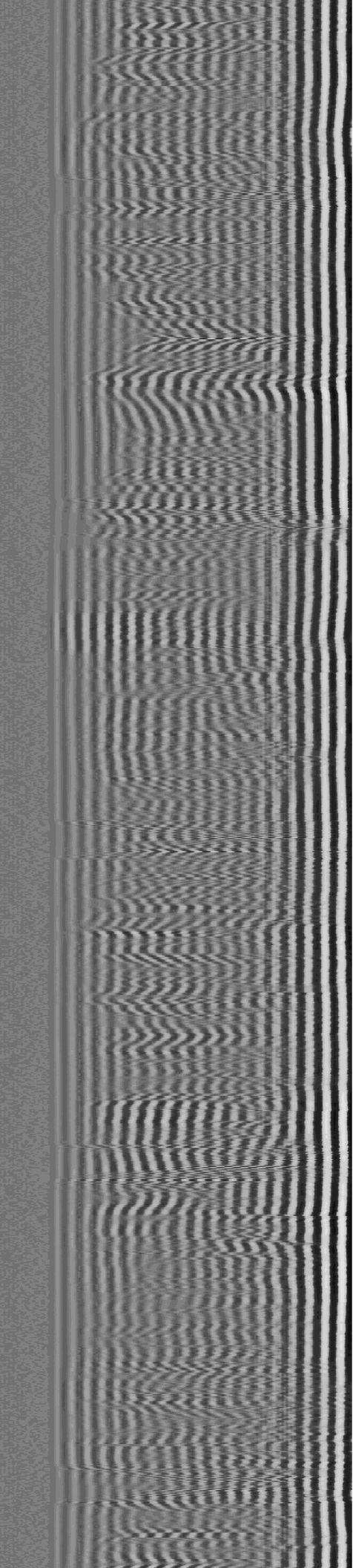
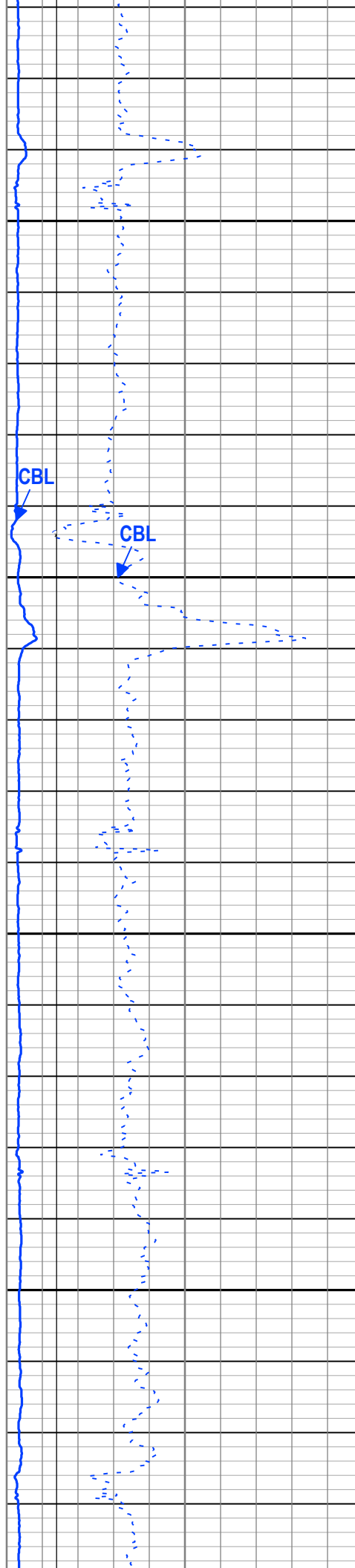
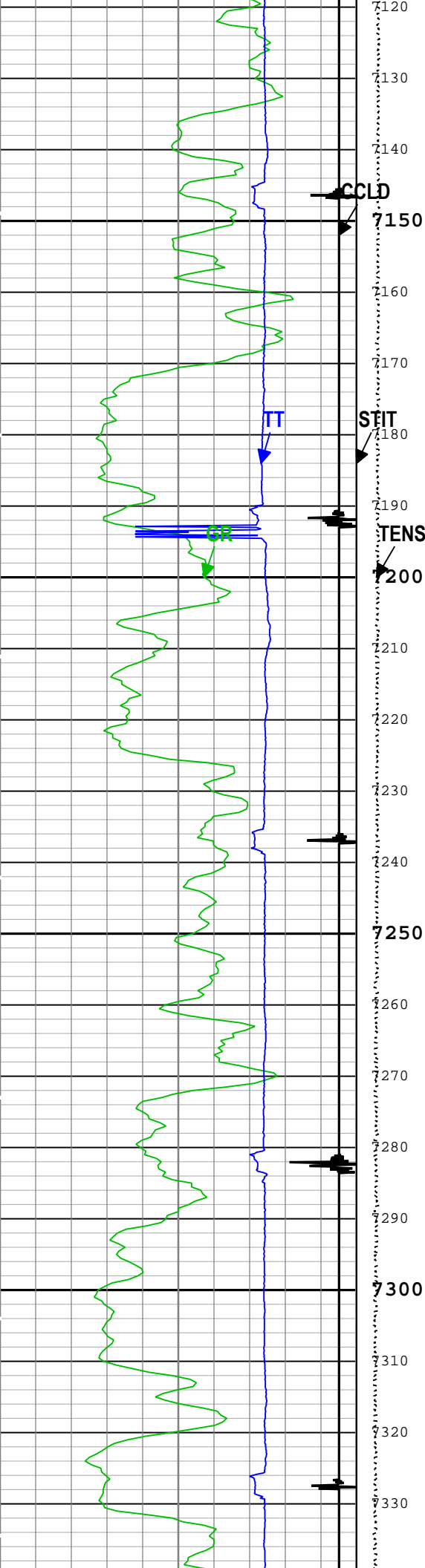


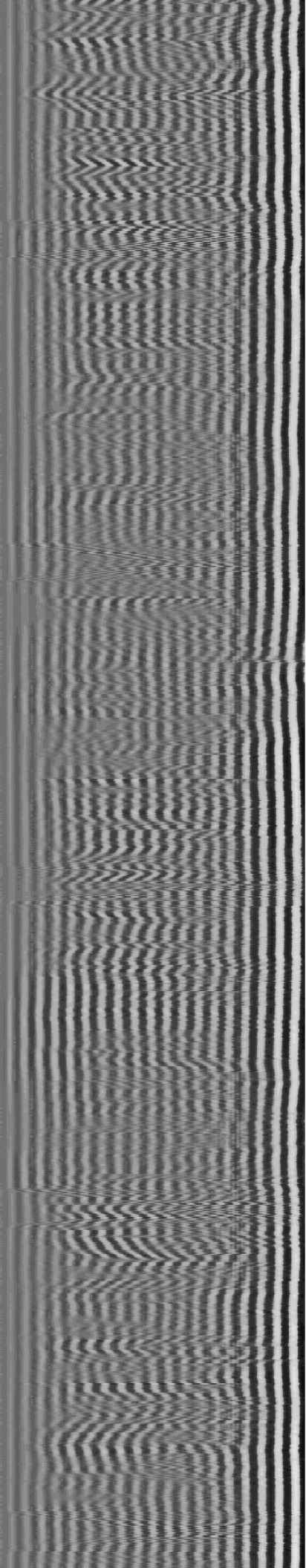
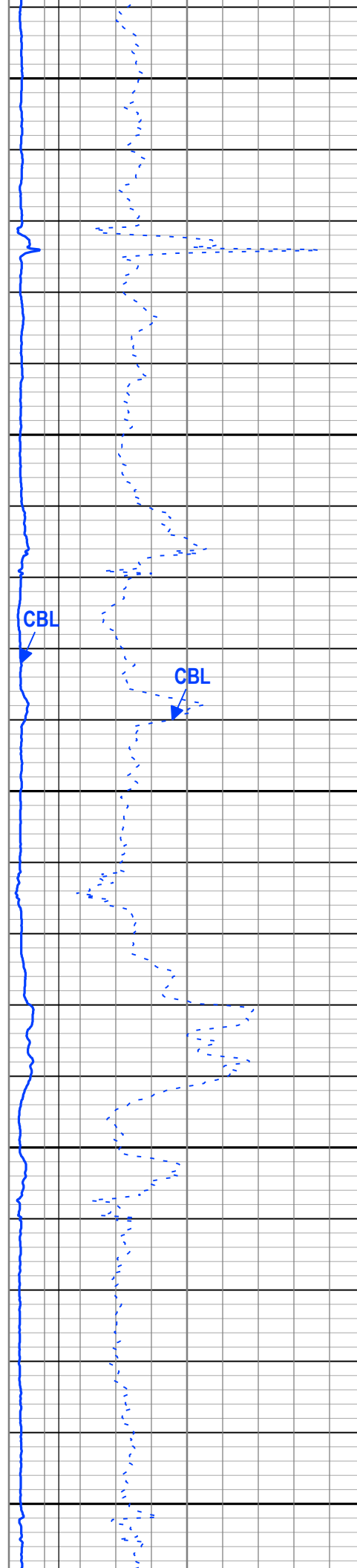
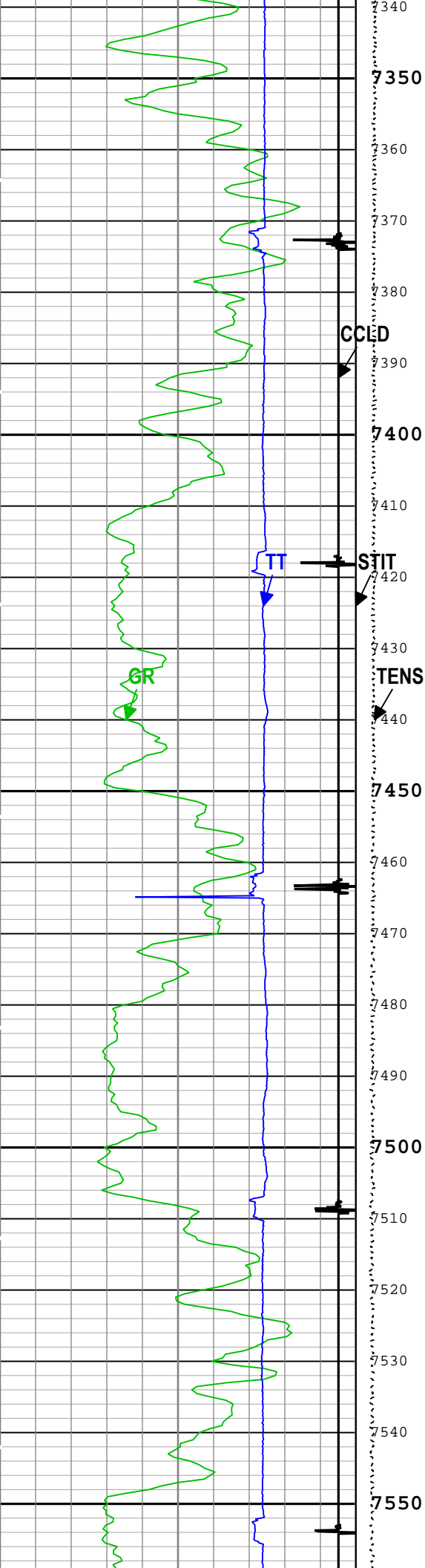


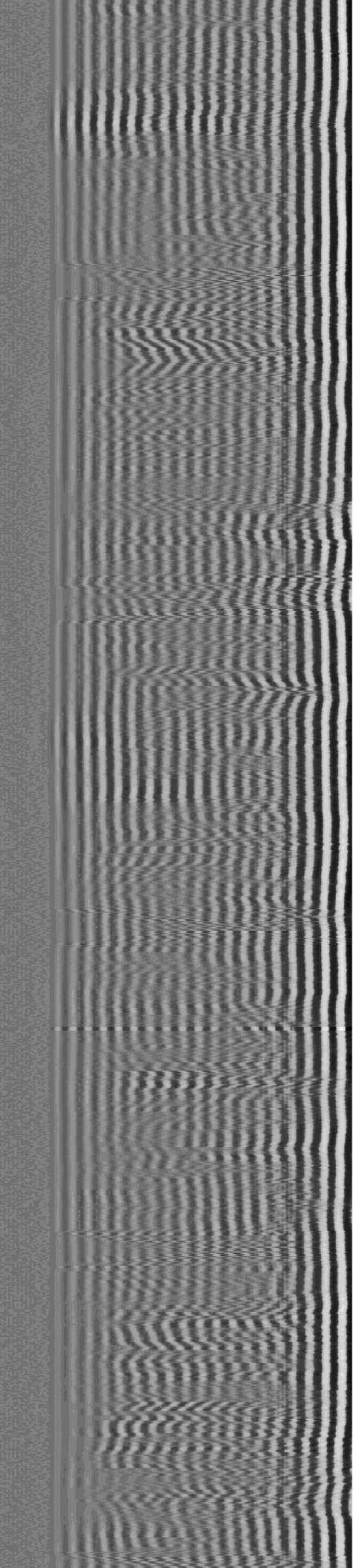
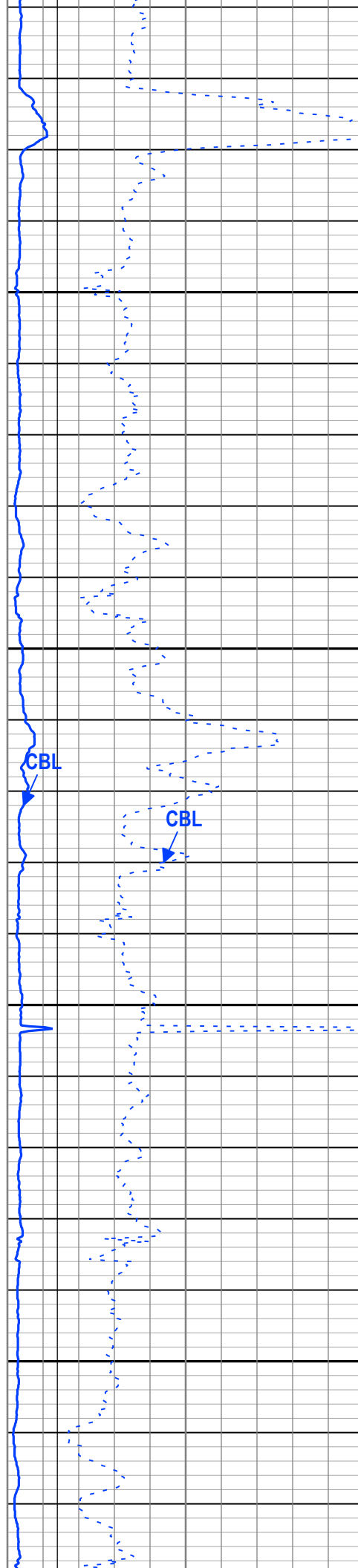
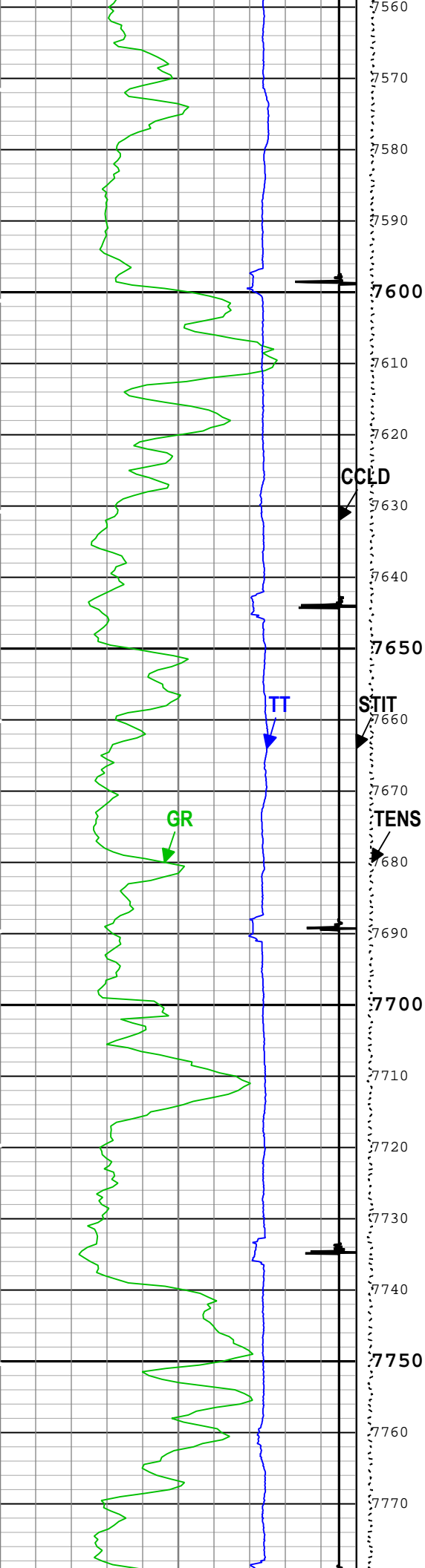


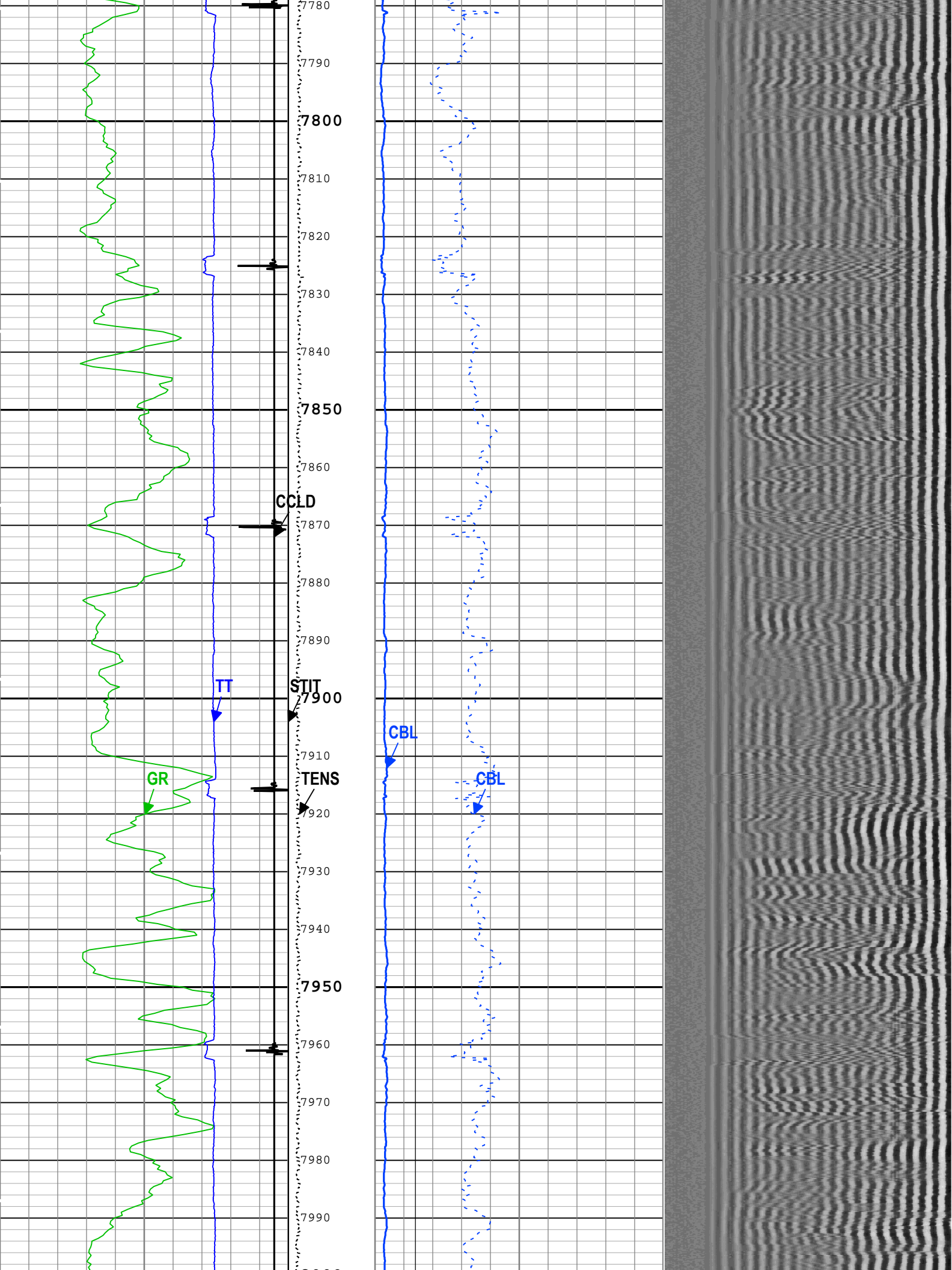


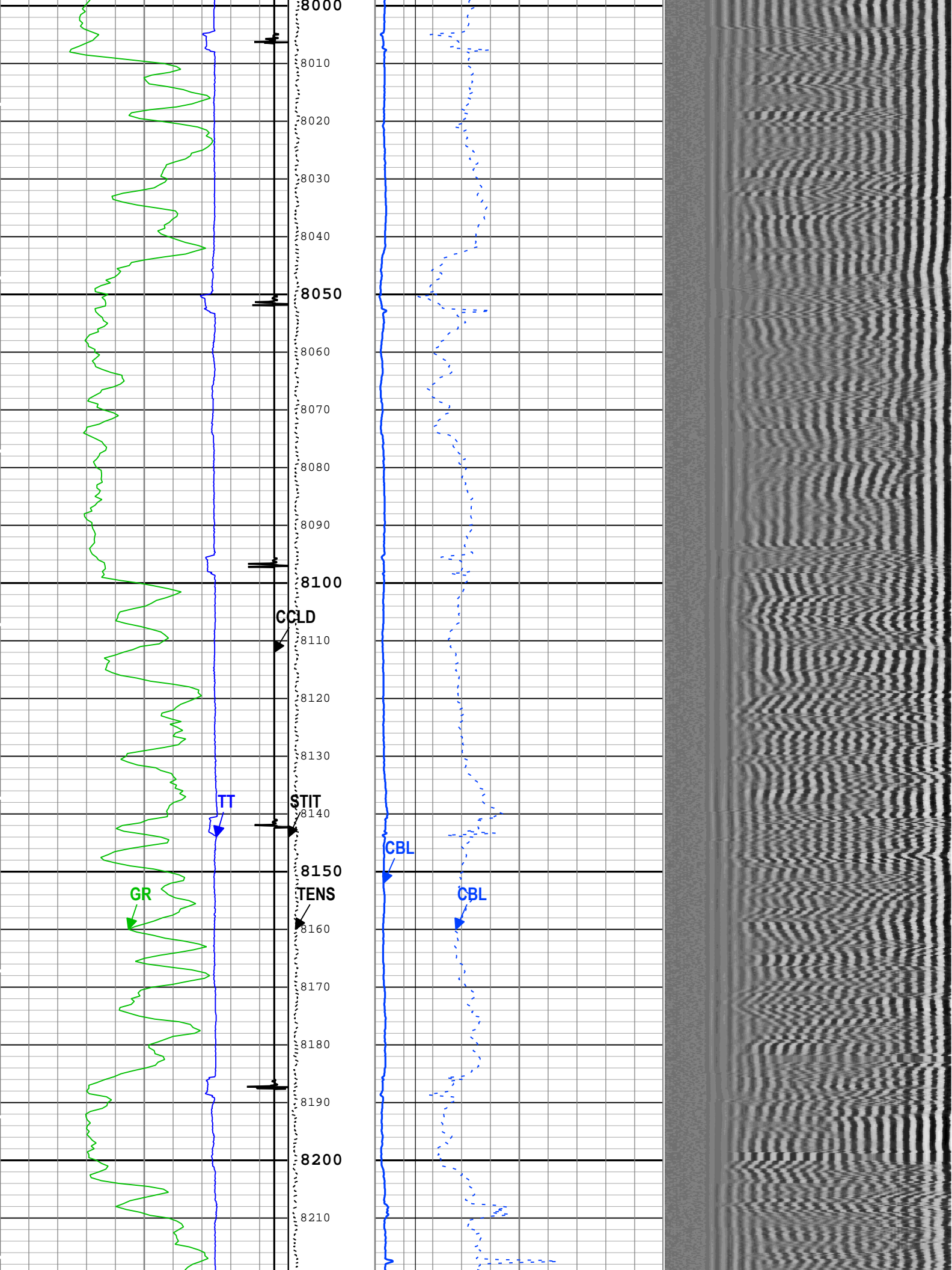


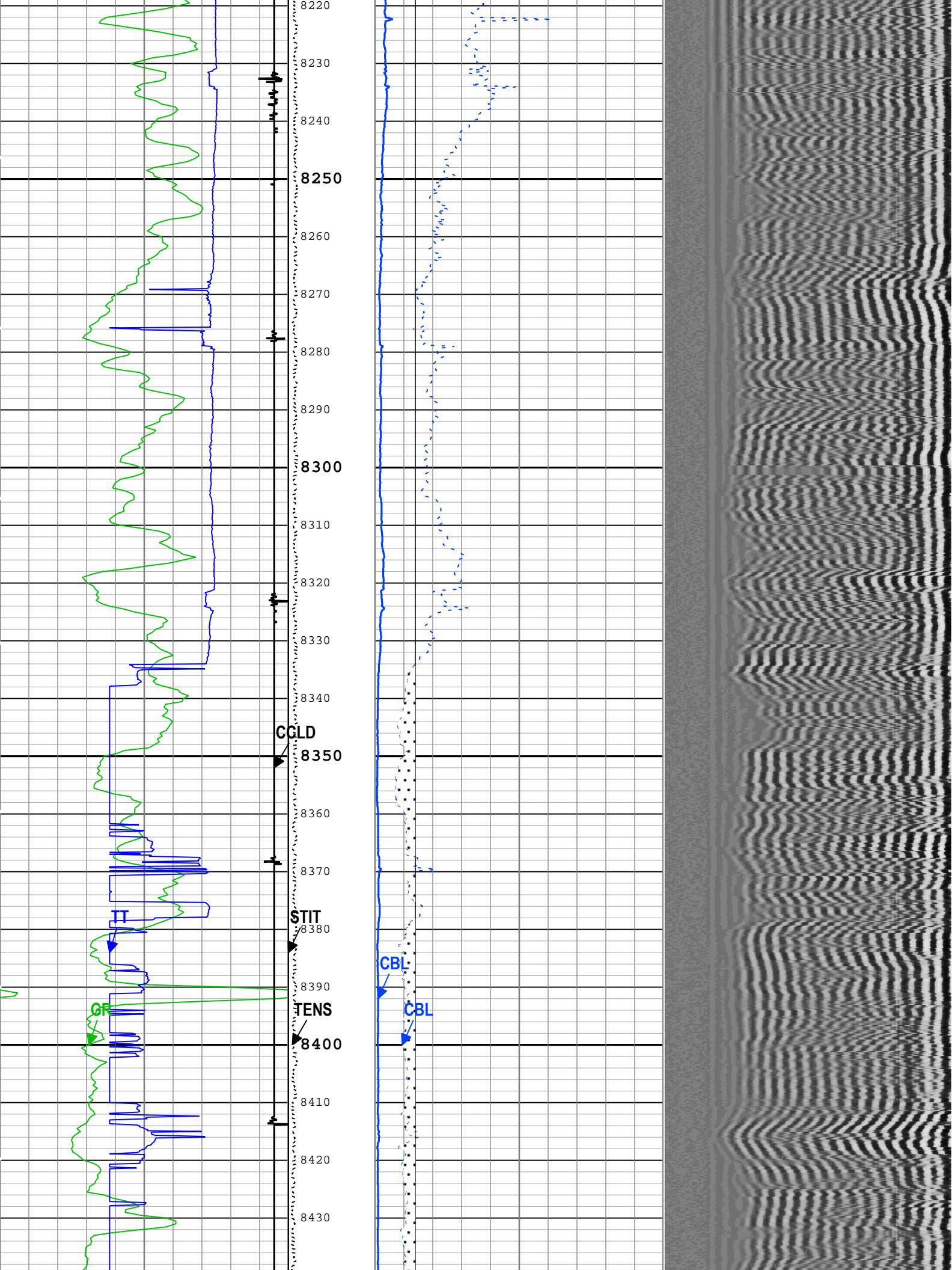


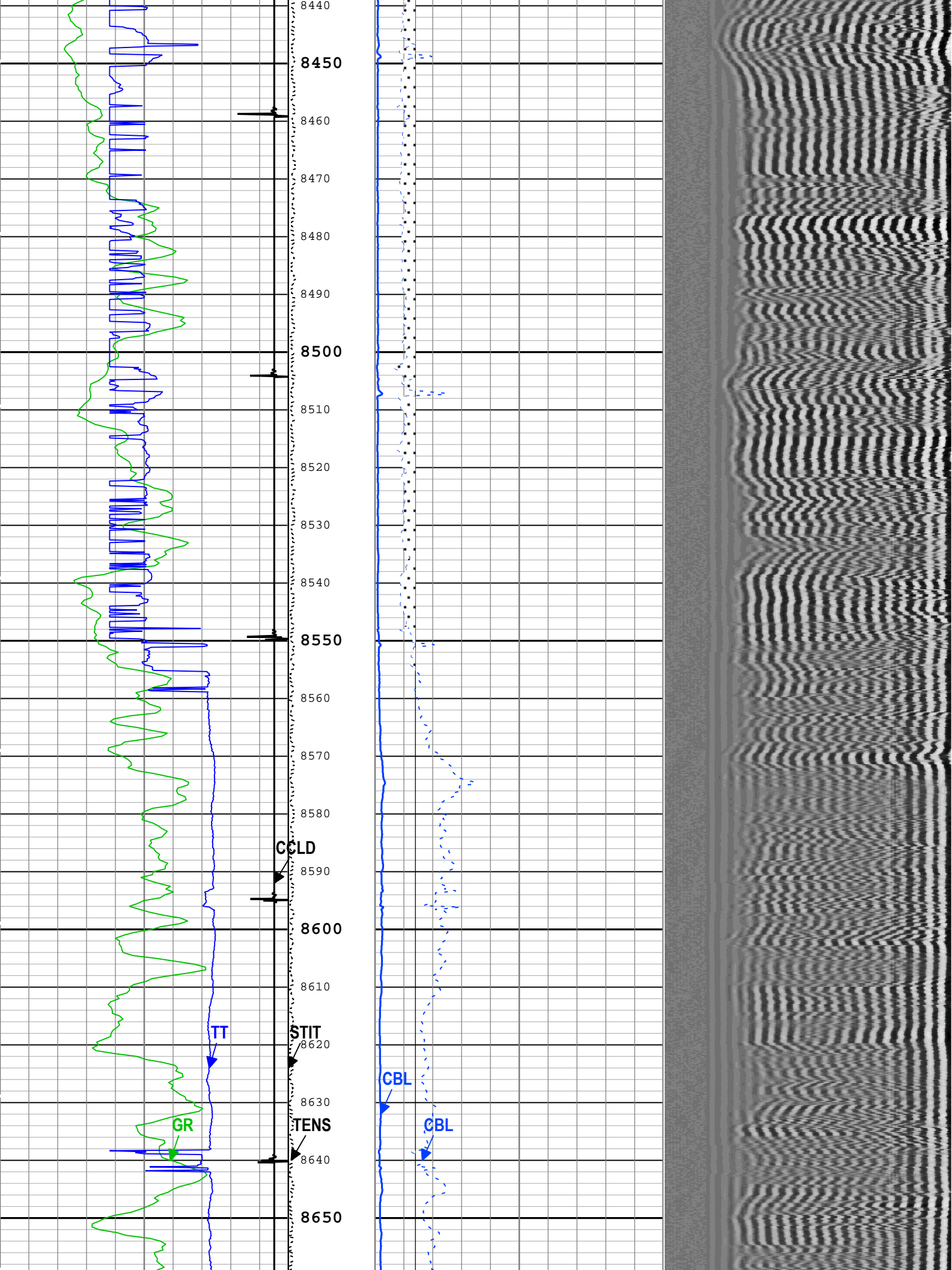


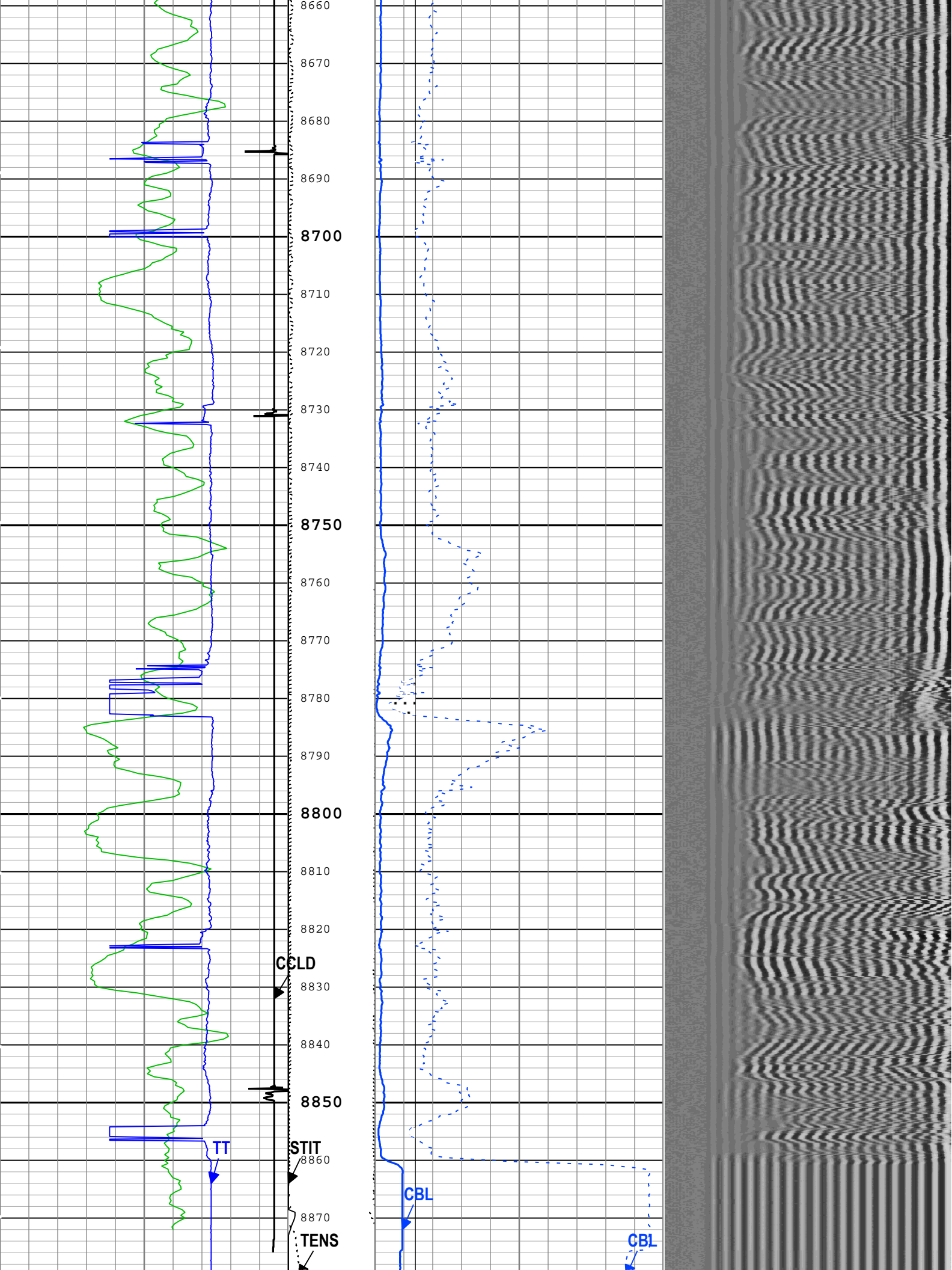


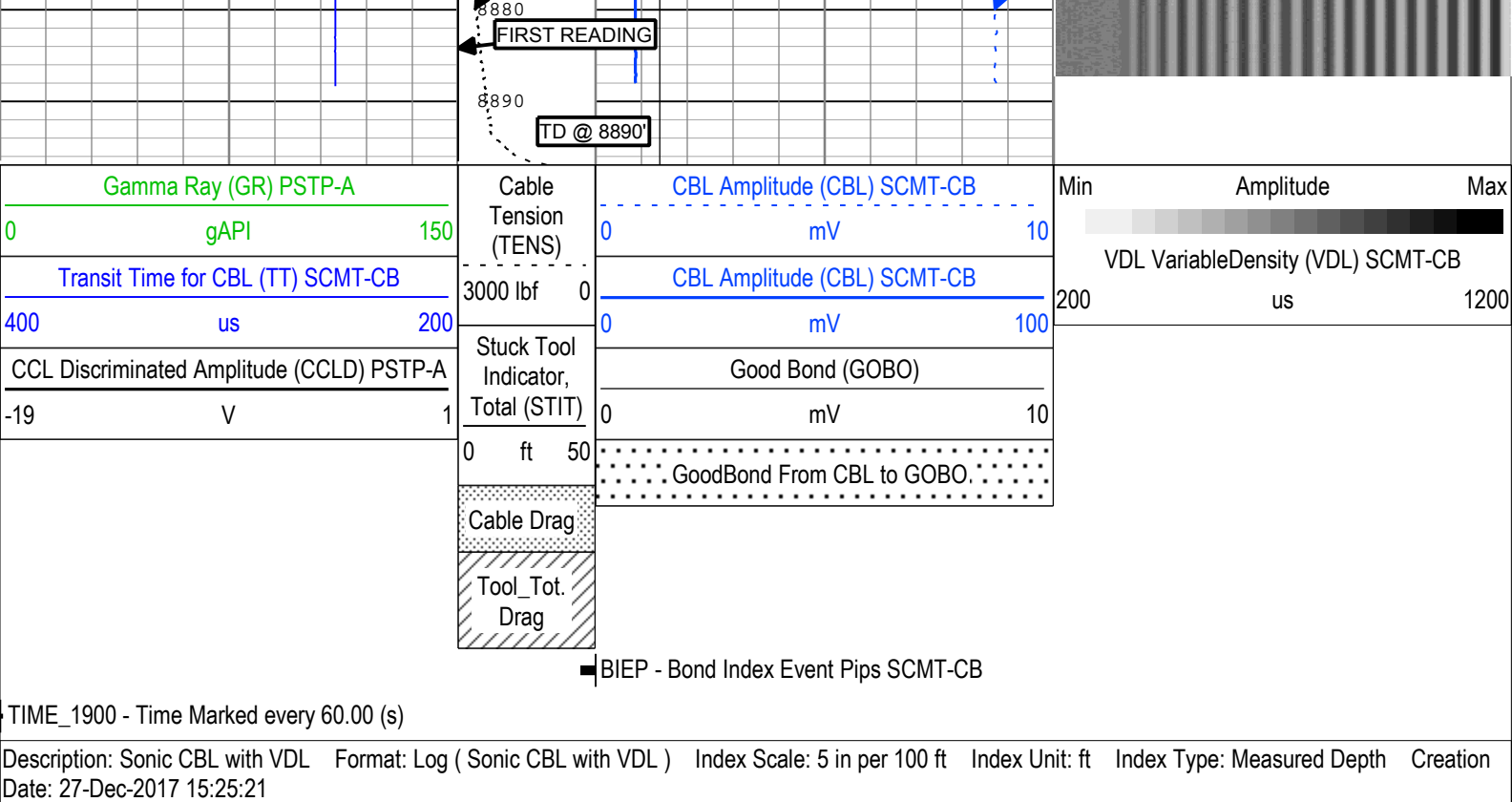












All depth are actual.

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CBLG	65	16-Dec-2017 11:32:55	16-Dec-2017 12:56:15	8896.89	6433.61
CBLG	62	16-Dec-2017 12:56:15	16-Dec-2017 15:08:24	6433.61	2468.05

All depth are at tool zero.

Tool Control Parameters

SCMT: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	12 dB	

SCMT

Repeat Pass

Software Version

Acquisition System	Version
Maxwell 2017 SP3	7.3.90279.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
SCMT	Log[6]:Up	Up	8213.09 ft	8548.30 ft	16-Dec-2017 11:16:44	16-Dec-2017 11:28:18	ON	15.10 ft	Yes

All depths are referenced to toolstring zero

Log

Company:CAERUS OPERATING LLC

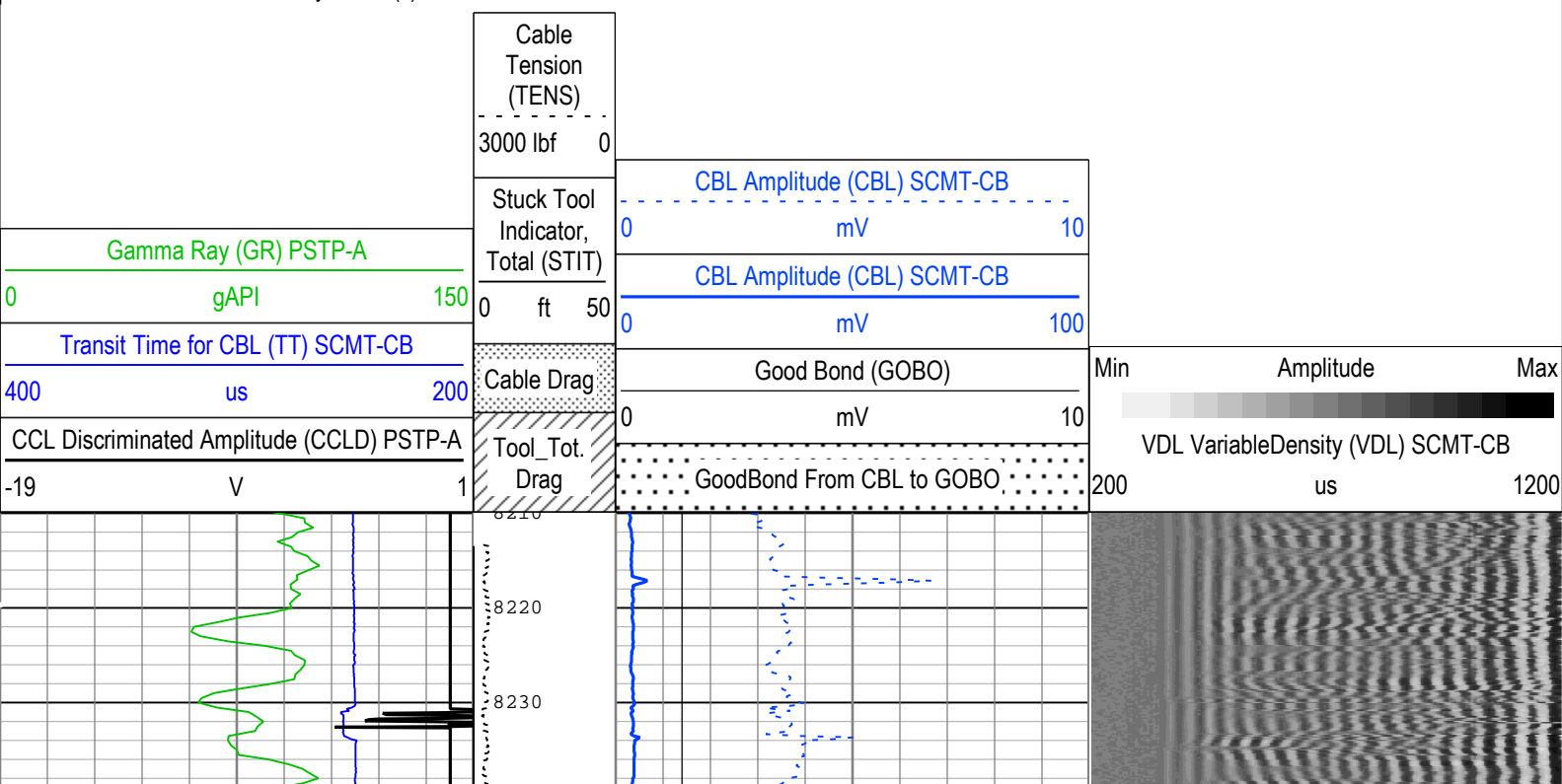
Well:Puckett 13C-23 697

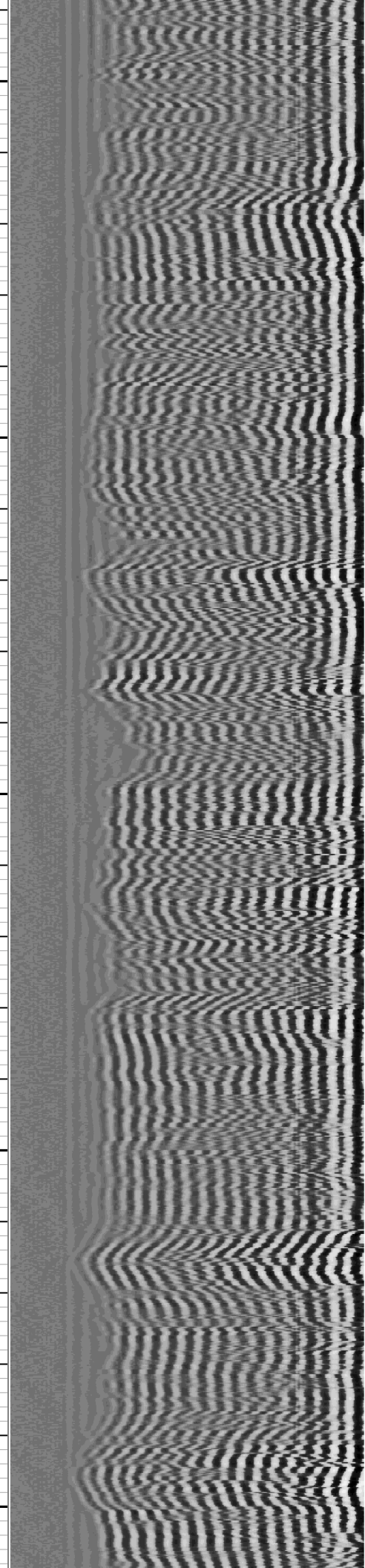
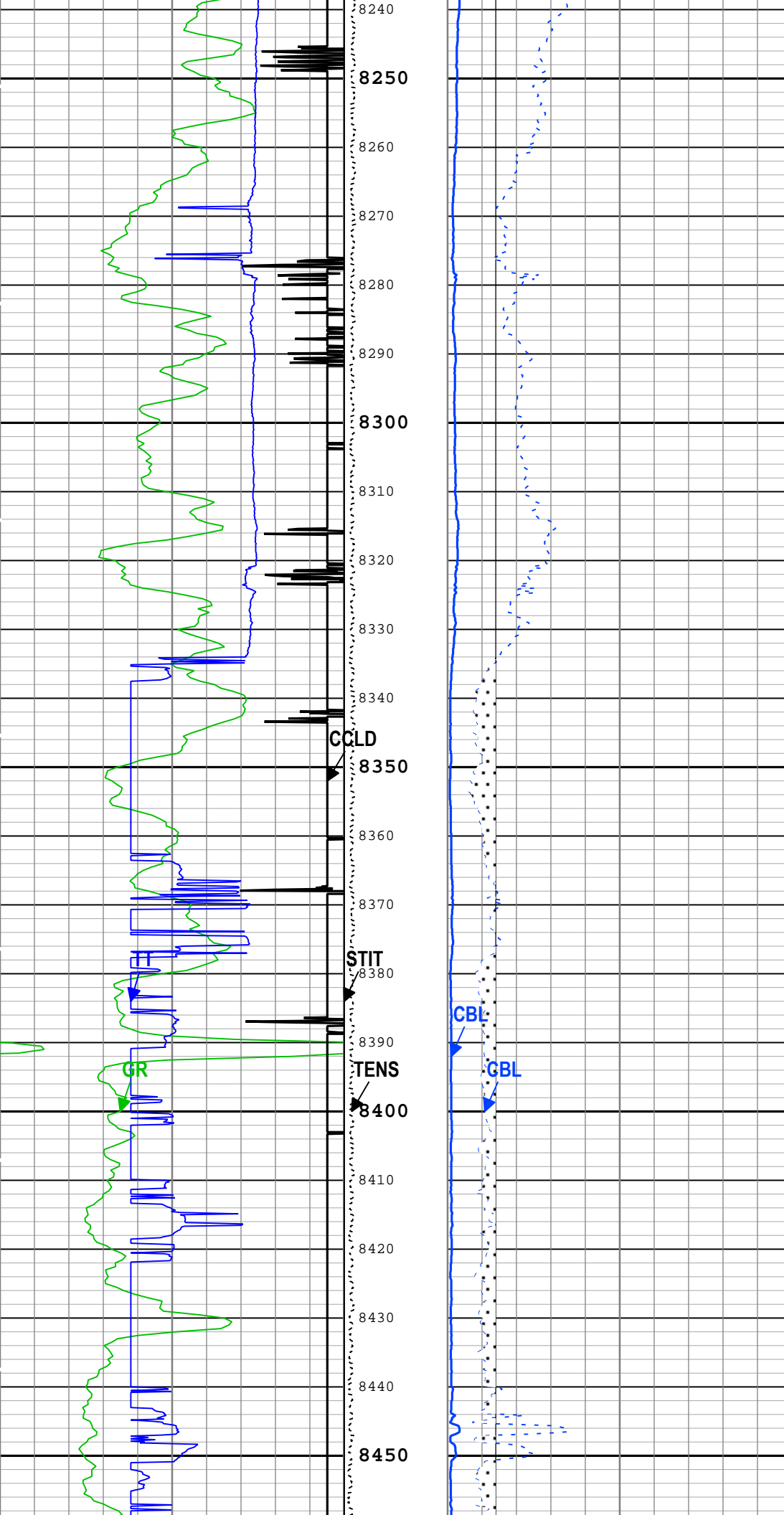
SCMT: Log[6]:Up:S015

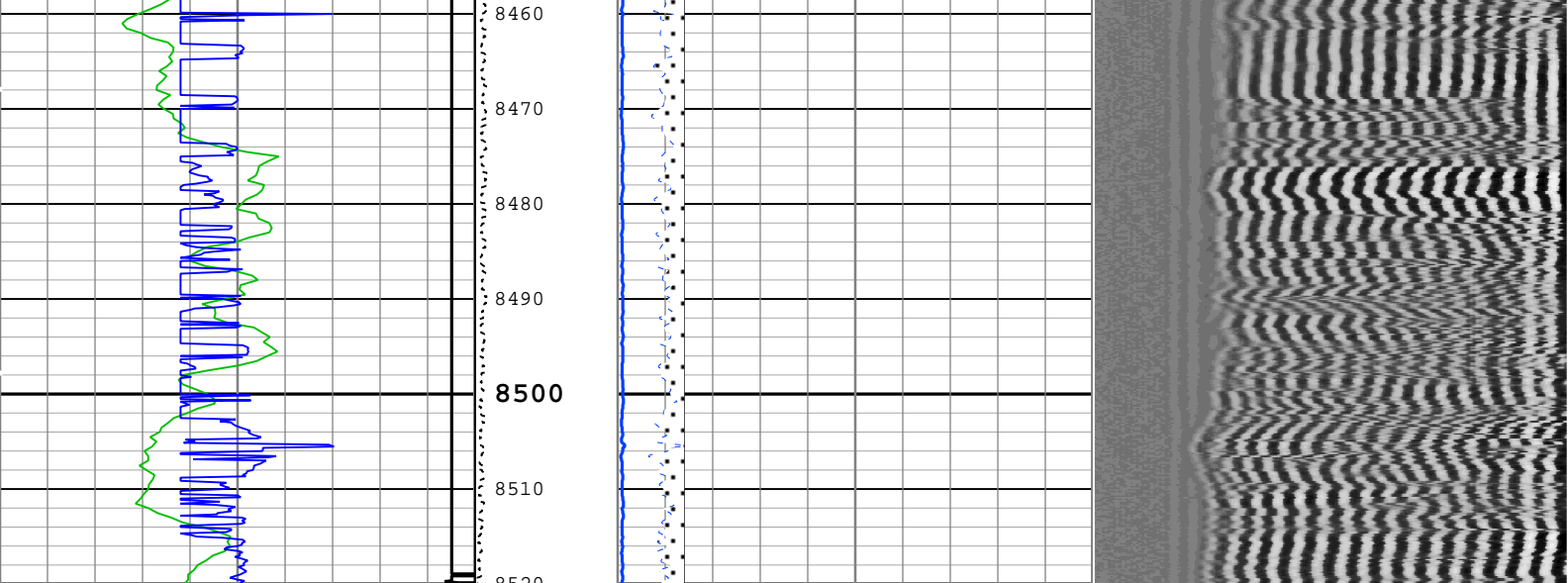
Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Dec-2017 15:25:50

■ BIEP - Bond Index Event Pips SCMT-CB

TIME_1900 - Time Marked every 60.00 (s)







Gamma Ray (GR) PSTP-A	Cable Tension (TENS)	CBL Amplitude (CBL) SCMT-CB	Min	Amplitude	Max
0 gAPI 150	3000 lbf 0	0 mV 10			
Transit Time for CBL (TT) SCMT-CB	Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) SCMT-CB	VDL VariableDensity (VDL) SCMT-CB		
400 us 200	0 ft 50	0 mV 100	200 us 1200		
CCL Discriminated Amplitude (CCLD) PSTP-A	Cable Drag	Good Bond (GOBO)			
-19 V 1	Tool_Tot. Drag	0 mV 10			
		GoodBond From CBL to GOBO.			

TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CB

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Dec-2017 15:25:50

Channel Processing Parameters

SCMT: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	224	us
CBLG	CBL Gate Width	SCMT-CB	Time Zoned	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.6	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	8432	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	1.25	ft

MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CBLG	40	16-Dec-2017 11:16:44	16-Dec-2017 11:19:56	8548.3	8469.76
CBLG	50	16-Dec-2017 11:19:56	16-Dec-2017 11:20:17	8469.76	8459.11
CBLG	78	16-Dec-2017 11:20:17	16-Dec-2017 11:21:09	8459.11	8432.69
CBLG	100	16-Dec-2017 11:21:09	16-Dec-2017 11:21:12	8432.69	8431.06
CBLG	65	16-Dec-2017 11:21:12	16-Dec-2017 11:28:18	8431.06	8213.09

All depth are at tool zero.

Tool Control Parameters

SCMT: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	Time Zoned	

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
PCCG	36 dB	16-Dec-2017 11:16:44	16-Dec-2017 11:26:44	8548.3	8259.49
PCCG	24 dB	16-Dec-2017 11:26:44	16-Dec-2017 11:26:49	8259.49	8256.41
PCCG	12 dB	16-Dec-2017 11:26:49	16-Dec-2017 11:26:53	8256.41	8254.46
PCCG	36 dB	16-Dec-2017 11:26:53	16-Dec-2017 11:27:25	8254.46	8237.74
PCCG	24 dB	16-Dec-2017 11:27:25	16-Dec-2017 11:28:18	8237.74	8213.09

All depth are at tool zero.

SCMT

Free Pipe Pass

Software Version

Acquisition System	Version
Maxwell 2017 SP3	7.3.90279.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
SCMT	Log[4]:Up	Up	1264.79 ft	1565.20 ft	16-Dec-2017 10:46:43	16-Dec-2017 10:56:45	ON	15.00 ft	Yes

All depths are referenced to toolstring zero

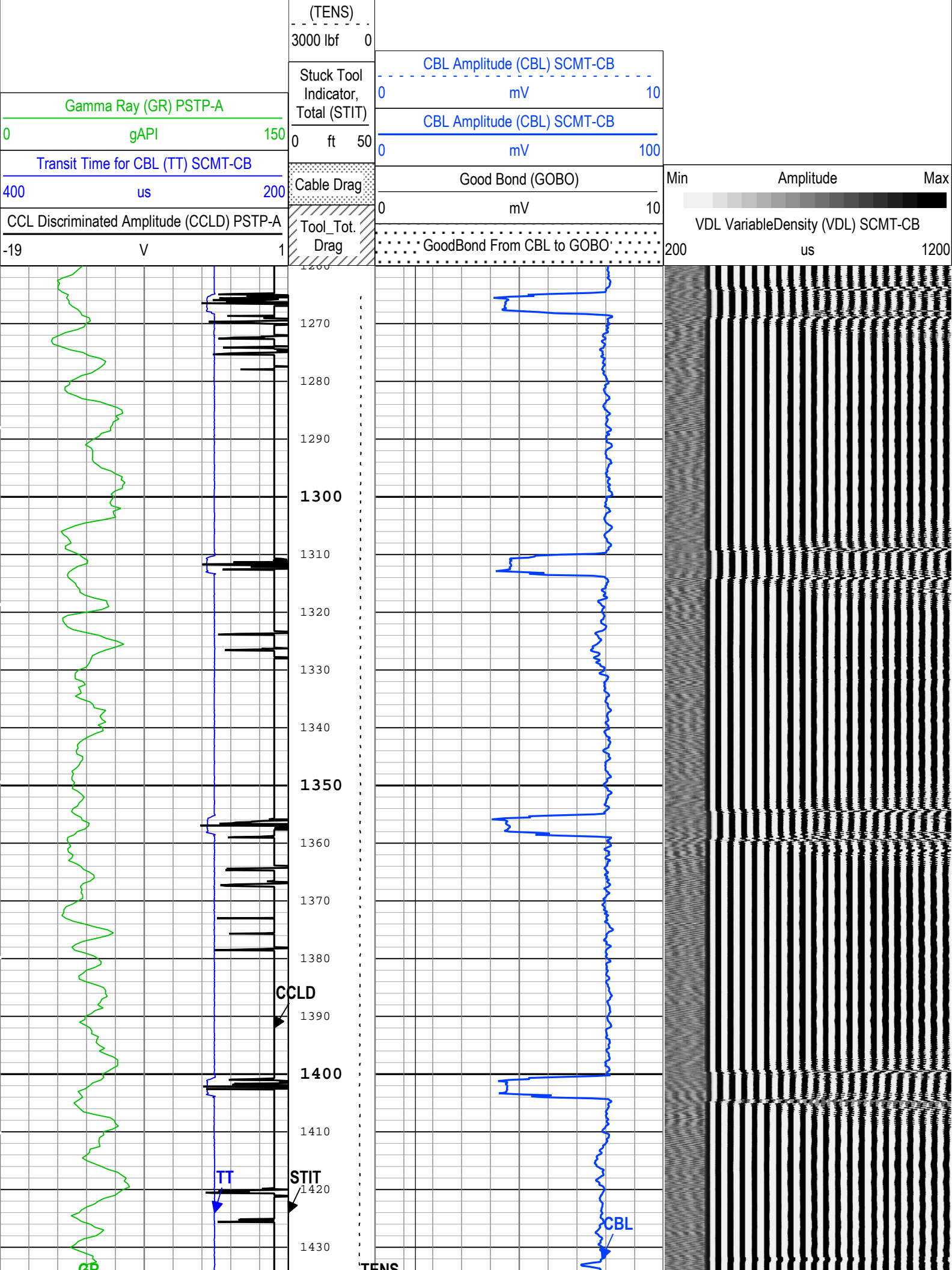
Log Company: CAERUS OPERATING LLC Well: Puckett 13C-23 697
SCMT: Log[4]: Up: S015

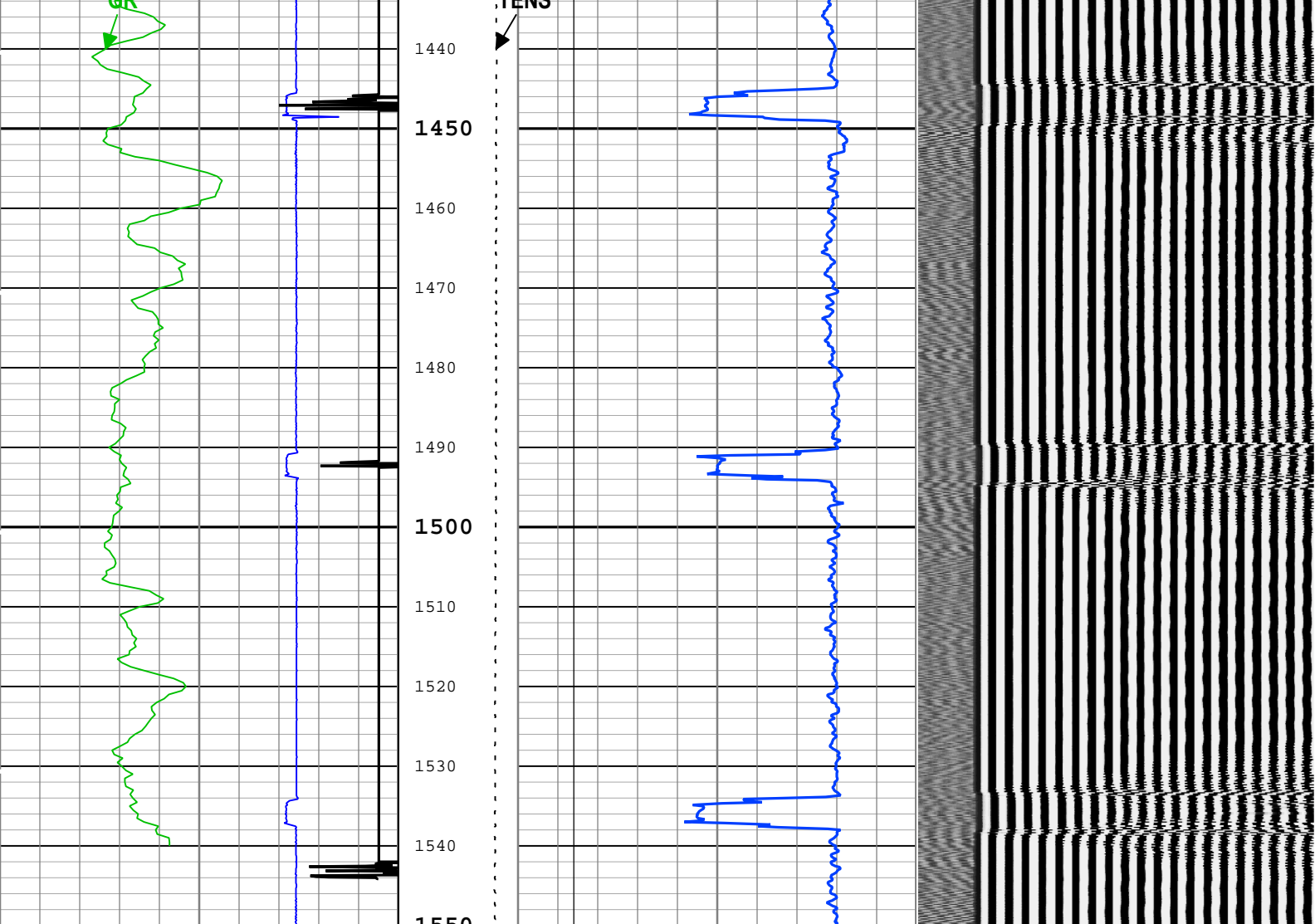
Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Dec-2017 15:25:56

- BIEP - Bond Index Event Pips SCMT-CB

TIME_1900 - Time Marked every 60.00 (s)

Cable Tension





Gamma Ray (GR) PSTP-A	Cable Tension (TENS)	CBL Amplitude (CBL) SCMT-CB	Min	Amplitude	Max
0 gAPI 150	3000 lbf 0	0 mV 10			
Transit Time for CBL (TT) SCMT-CB	Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) SCMT-CB		VDL VariableDensity (VDL) SCMT-CB	
400 us 200	0 ft 50	0 mV 100	200	us	1200
CCL Discriminated Amplitude (CCLD) PSTP-A	Cable Drag	Good Bond (GOBO)			
-19 V 1	Tool Tot. Drag	0 mV 10			
		GoodBond From CBL to GOBO			

TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CB

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 27-Dec-2017 15:25:56

Channel Processing Parameters				
SCMT: Parameters				
Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	224	us
CBLG	CBL Gate Width	SCMT-CB	40	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV

THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.6	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	8432	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	14.81	ft
MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF

Tool Control Parameters					
SCMT: Parameters					
Parameter	Description	Tool	Value	Unit	
CMTM	SCMT Operating Mode	SCMT-CB	Time Zoned		
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h	
PCCG	PSP Downhole CCL Gain	PSTP-A	36 dB		
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
CMTM	Free Pipe	16-Dec-2017 10:46:43	16-Dec-2017 10:50:27	1565.2	1457.05
CMTM	Log	16-Dec-2017 10:50:27	16-Dec-2017 10:56:45	1457.05	1264.79
All depth are at tool zero.					

Company: CAERUS OPERATING LLC

Schlumberger

Well: Puckett 13C-23 697

Field: Grand Valley

County: Garfield

State: Colorado

Cement Quality Log

CBL / VDL

